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THE IRON AGE

THE NATIONAL METALWORKING WEEKLY May 25, 1950

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THE IRON AGE

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Special Article

Standard fork trucks can perform a multiplicity of special handling jobs through use of interchangeable attachments. These units release trucks from single confining operations. They eliminate the pallet return problem.—p. 67.

Issue Highlights

Because ordinary polishing abrasives are too soft, diamond powder must be used to obtain a metallurgical polish on cemented carbides. Etching and polishing require great care. The high magnification necessary makes extreme flatness essential.—p. 71.

A manufacturer of reels and other fishing tackle finds that more than half of the parts prepared by Britehoning in Roto-Finish barrels need no buffing before plating. Parts requiring further treatment need only a minimum of buffing over the already smooth lustrous surface.—p. 75.

Optimism is fading fast on clarification of industry's right to absorb freight. Congress, the Federal Trade Commission and the Supreme Court have all had chances to clarify this problem, but the Supreme Court is the only arm of government likely to act soon.—p. 89.

Electric furnace production this year has been spiraling upward to a present level of more than 90 pct of rated capacity. Prime benefactor is the lusty conversion market fostered by intense demand for steel. Orders are being booked 6 to 8 weeks ahead.—p. 93.

The auto industry has set a course during the next few months which will eclipse by a wide margin all previous output records. This has already extended conversion deals another 6 months. Pressure is tightest on flat-rolled items. —p. 94.

Coming Next Week

The plant orginally built to manufacture a new light car now machines and assembles the Chevrolet Powerglide transmission. Standard and special machines are teamed for efficient performance of nearly 500 operations. Complete machining operations on the two largest parts, the bell housing and the transmission case, are traced in the first part of a two-part article.

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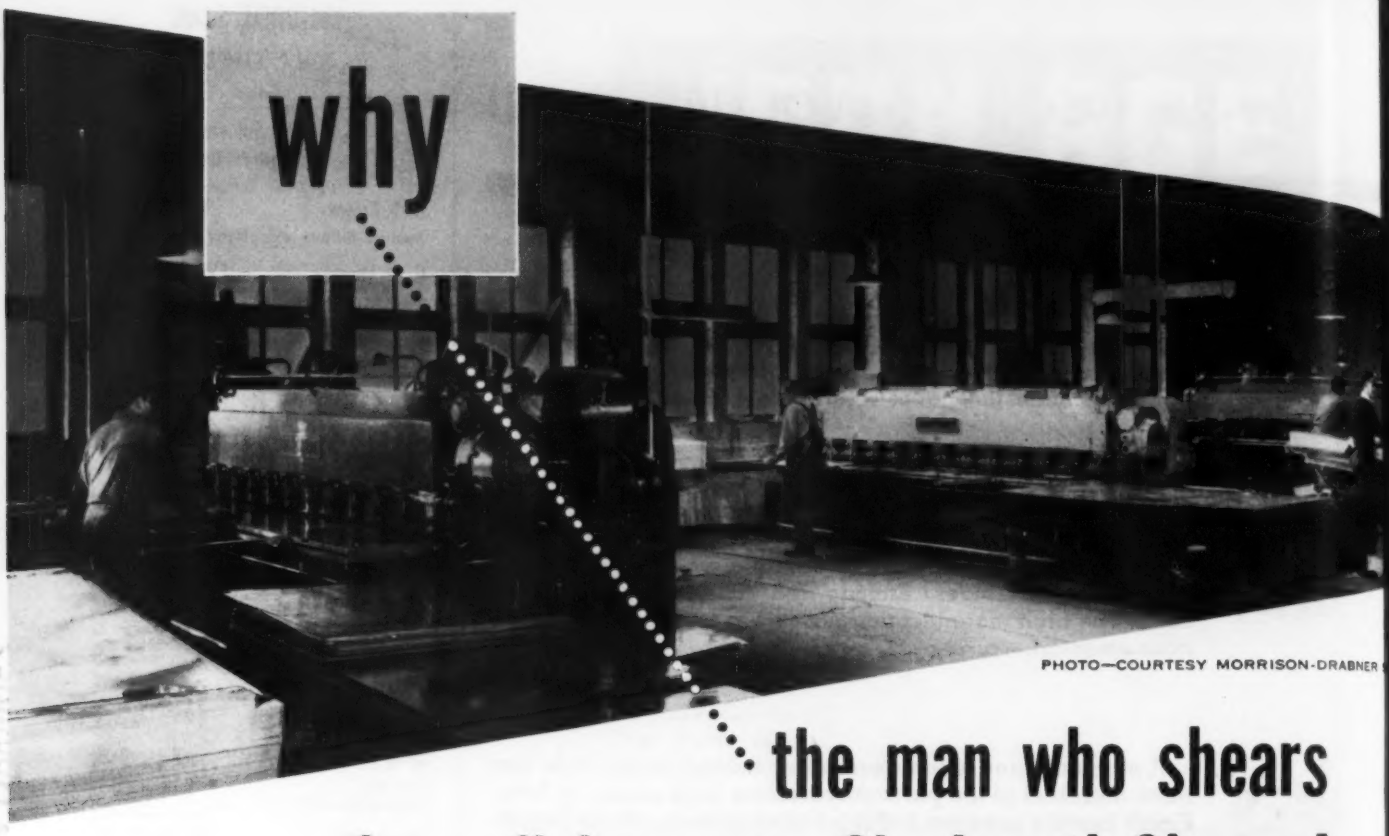

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Editorial

INDUSTRY VIEWPOINTS

A Future Pitfall?

MAYBE we are a little previous. Maybe it will never come about. But theorists and some government people have a way of making a simple thing look mighty suspicious.

Tucked away in the news recently have been reports on talks by government people about water. People in New York City know all about water. They just recently missed a drought that might have been more serious than it was.

These news items point out that in the years to come we will be seriously short of water. They say there is not enough and that the population has grown so fast that we are in for a national water shortage. And so on.

What does this have to do with you? It has plenty to do with you. Of course you are aware of the water shortage. You also know how vital water is to your operations. And you also know that your operations and products mean a higher standard of living; work for more people; better wages; more return for the stockholder; and more taxes to support welfare programs.

So much for that. Still you ask what has water to do with all this? Water is something a big noise can be made about. Water is something the politicians, in the years to come, will have a lot of fun with. Water is something people know about and can be aroused about. Just like you can get people aroused by such misstatements as: We don't have enough steel capacity; business makes too much money; prices are too high; wage increases can be paid without hurting industry or raising prices.

Well the politicians can do the same thing with water. They can say that selfish industrialists are using up all the water that belongs to the people. Or that business is wasting water. Or that industry is doing nothing about the long range water problem.

They can go so far as to say—if they are demagogues—that it is unpatriotic the way water is being used by manufacturers. They can say anything about water and get away with it—if the other side does not stand right up and give the facts quickly.

Many metalworking plants use a lot of water. They must to carry on their business. They are water conscious. They are doing all they can to plan long ranged programs. Many are working with state or government agencies. But who knows this?

Now is the time to start telling your employees and the public that: You do know that water is a problem; that you are doing something about it; that water is an important item in making more things for more people; and that you do not intend to waste it anymore than you would waste your own machinery.

Now is the time to prepare for what may someday become a cause celebre—with the politicians yelling to the high heavens that precious water is being wasted, misused, and that industry is to blame.

Tom C. Campbell

Editor

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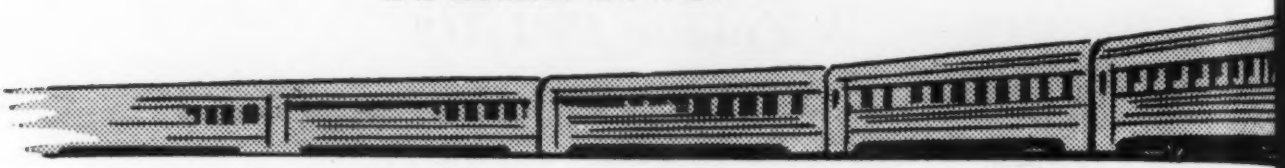

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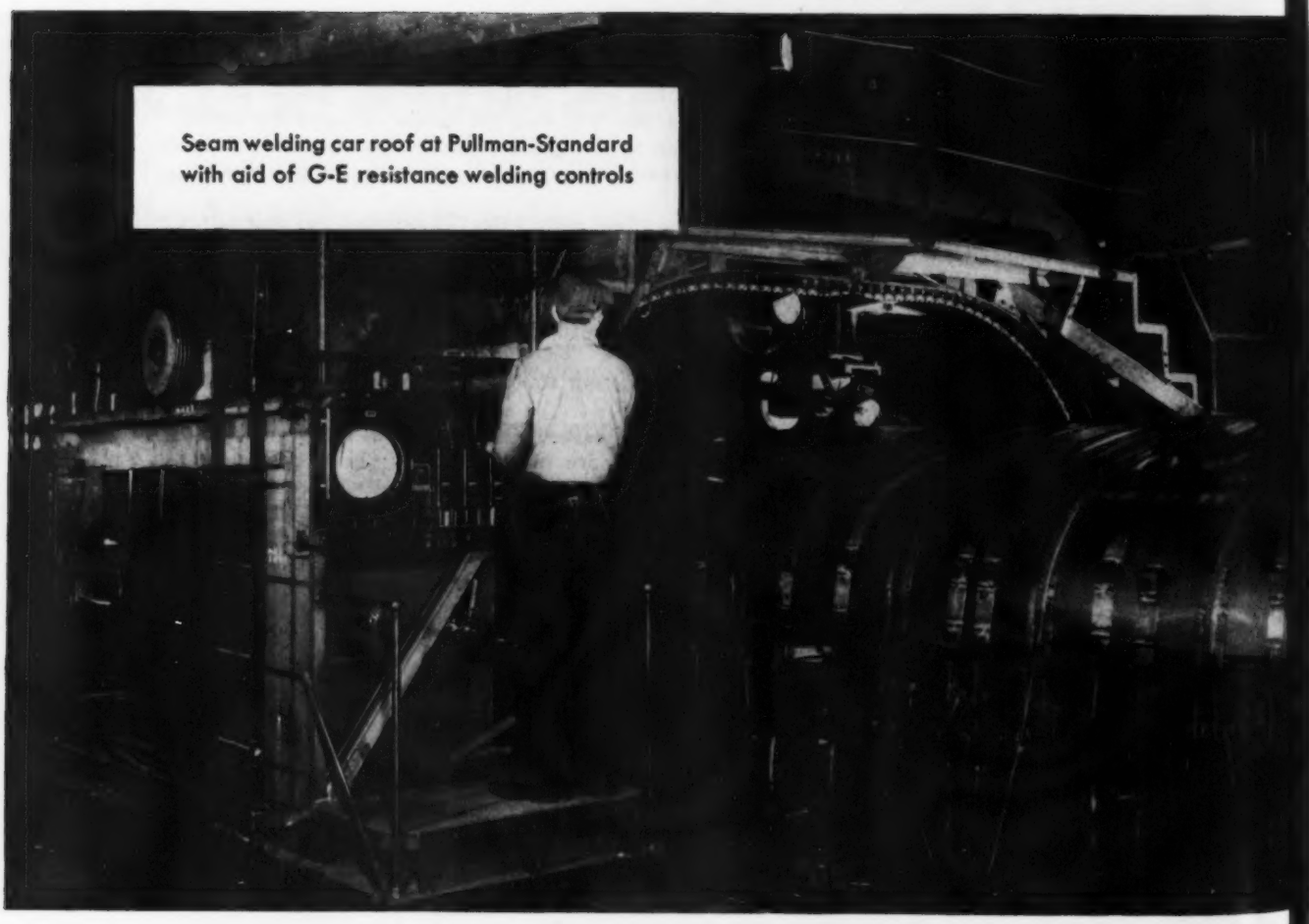

Seam welding car roof at Pullman-Standard with aid of G-E resistance welding controls

NEWSFRONT

NEWS, METHODS AND PRODUCT FORECAST

► Carryovers are so heavy in some steel mills that July may be wiped out. That month may be used for cleanup. Despite the high operating rate delivery pressure will be strong for some time. Vacations will shut some mills and shorthand others.

► Recent research indicates that refractory carbides are better materials for use in the hot end of gas turbines than are refractory oxides. Of the carbides, TiC has stood up best of all.

► Add technological improvements that increase steelmaking capacity without adding furnaces: Spectrographic analysis saves 20 min per heat in electric furnace melting shops.

► The automobile production outlook still looks very good to Detroiters despite recent record output. Major producers are scheduled at even higher levels through August. Some experts look for a "normal" market this fall. One unpleasant sign is rapidly climbing auto financing volume.

► Steel shipped to appliance makers is not going into heavy inventories. They are not hesitant about accepting their full allocations for the months ahead—would take more if they could get it. Appliances are selling and distributors are optimistic too. New houses, apartments and renovations are behind the unexpected demand.

► A hydraulically operated portable coil-end straightener will be ready for the market soon. It will simplify the job of straightening coil ends before starting them through slitters—a task now done manually or with stationary equipment.

► A new draw bench for ferrous or nonferrous stock continuously draws rods at speeds up to 250 fpm, automatically straightening, polishing and cutting them to length.

► Now that the English have coal blending problems similar to those of the American steel industry their engineers will watch with interest the first installation there of a blending machine at the John Summers works. It takes the metallurgical coal from bedded piles; a harrow-like face rakes coal from each layer of the bed and a conveyer hauls it to a belt conveyer which takes it to the coke ovens.

► The steel and coal strikes put a terrific crimp in steel stocks within the mills—a much greater crimp than is generally thought.

► Cold rolled sheets sold in the gray market at Pittsburgh last week for $200 a ton.

► An automatic "fluid" coupling developed in Europe uses a mixture of metallic powders treated with graphite -- instead of a liquid -- to transmit torque. The mixture behaves like a powder on starting, then as a fluid of increasing density as speed picks up, and finally acts as a solid.

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**From Attendance Report No. 4 in a continuing analysis of Metal Show visitors. If you have not received a copy write National Metal Congress & Exposition, 7301 Euclid Avenue, Cleveland 3, Ohio.*

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Midwest Reaches for Steel

Sheet Shortage to Continue

Scrap Prices Running Wild

The Iron Age SUMMARY

IRON AND STEEL INDUSTRY TRENDS

DESPITE new steelmaking records almost every week, steel users are having little or no success in building up inventories. In their efforts to obtain more steel they are using all the tricks they learned in the postwar procurement battle. But there just isn't enough to go around.

A careful check among steel users in all major consuming areas by IRON AGE editors reveals the following: (1) All major steel items are now in tight supply and the pressure is mounting instead of decreasing. (2) Flat-rolled products are most critical; some users are getting panicky. (3) Steel is regarded as better than money in the bank by many users—whether they need it or not. (4) Some plants are being forced to shut down intermittently because of steel shortages (usually cold-rolled sheets). (5) Others are operating hand-to-mouth, with uncertain steel delivery playing havoc with production schedules.

Draw a circle around Chicago and Detroit and you have enclosed the two areas of greatest furor. These mighty industrial areas are chewing up all the steel in sight and probing distant markets with their procurement tentacles. This is mounting unexpectedly intense pressure on what would normally be surplus steel areas such as Pittsburgh.

Long Race Expected

Pent-up demand, resulting from over-corrected inventories and production losses due to strikes, is still snowballing. Even record breaking steel production will not catch up with it overnight. It will be many weeks before quick delivery can be obtained on most steel items.

Some consumers are convinced that they face a long-term problem in procurement of cold-rolled sheets. Hence they are trying to make conversion deals into the first quarter of 1951. So far they have had no luck.

Orders for nearly all major products are still pouring in faster than the mills can turn them out, adding to the tremendous backlog. Consumers are unrelenting in their pressure for earlier delivery. By the end of the summer the mills are expected to be a full month behind on deliveries. This may cause them to drop a month out of their allotment schedules so they can catch up with deliveries and start all over.

The Ordeal of Demand

No other group is putting more pressure on the steel market than the auto makers. In spite of this, one auto company was facing an immediate shutdown for lack of sheets last week but was bailed out at the last minute by a stop-gap shipments from one of its competitors. Autos are currently being turned out at an annual rate of 8.5 million vehicles and most companies are planning to boost production.

Appliance makers are also continuing their torrid pace. They are not building inventories. They are using the steel as fast as they get it. And their products aren't resting on distributors' shelves or in warehouses. They are being sold.

Rumors continue to pop up about a slackening in demand for farm implements. Production schedules have recently been cut back by four big manufacturers. Light tractors are causing most concern. The real test will come when harvesters are sold. These are being produced in large numbers to meet late summer demand.

Scrap Zooms to New High

The jet-propelled scrap market has soared to another new high for the year. Healthy increases in the price of No. 1 heavy melting steel at Pittsburgh, Chicago and Philadelphia raised THE IRON AGE steel scrap composite price $1.75 a ton to $34.17 a gross ton. At least two steel companies are again requiring consumers to ship them scrap as a prerequisite for accepting a steel order.

Steel making operations this week are scheduled at 101.5 pct of rated capacity, up one-half point from last week's revised rate. If equalled, this rate will yield another new weekly production record.

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among vendors to auto makers the trend is to . . .

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Dear Editor

Letters from Readers

Where to Locate?

Sir:

I have just read the article "Small Steel Mills for Local Markets," which was in the Apr. 6 issue. A number of points have been bothering me since this whole question of freight on steel became an issue with the change in the basing point system. In the opening sentence, you state that a manufacturer whose principal raw material is steel, and whose location is distant from a steel mill, is in a difficult economic position.

This seems to ignore one factor in question, and perhaps two. First, where does the man sell his finished product? I do not think you can make any general statement about such a manufacturer's economic position unless you know what he makes and where he sells it. It seems to be a cheaper proposition to ship sheet steel than it is to ship the ingredients that make it at the steel furnace level.

There are, doubtless, individual locations in which a small mill would be a successful unit, but am I not right in feeling that, from any individual point of view, the problem contains a lot more factors than just his freight bill for sheet steel? We emphasize sheets here at Sears because, except for wire, rod, and a minor use of structural shapes, our big requirement in consumer goods is for sheets.

You have to look into each individual manufacturer's case before you can decide whether or not he is hurt by the present freight situation on steel. I personally called every major steel user among Sears manufacturers right after the basing point decision was made, and none of them was hurt. Those who are distant from the mills in locations like Iowa and St. Paul had always paid the freight on steel and were still paying it. If our location is uneconomical it was uneconomical in the first place.

We here at Sears make many freight studies, and, in almost every case, the outgoing freight cost on the finished product is much more important than the incoming freight consideration on the raw material, so we usually locate our factory based on outgoing freight. Usually, where the outgoing freight is unimportant in the value of the product, the entire freight consideration is unimportant in the value of the product, and it doesn't make any difference where your factory is.

R. S. BURKE
Mgr., Merchandise Testing & Development Laboratories
Sears, Roebuck & Co.
Chicago

Mr. Burke's letter was forwarded to H. W. McQuaid, author of the article referred to, who replied as follows:

"The statement that the manufacturer whose principal raw material is steel and whose location is distant from his steel source is in a difficult position, economically speaking, is quite generally true. This is because he must pay greatly increased freight charges as compared with a competitor close to a steel mill. It was intended to apply primarily to those industries which convert rolled steel as their principal raw material into a form which is useful to the general industrial operation. What the real effect of the abolishment of the basing point system and the great increase in freight rates on these industries will mean will not be known until we reach a period of old fashioned competition.

"Its greatest effect will depend on what market the steel consumer serves. If he is distant from a steel source and serves a nation wide market from a single plant he will still be at an economic disadvantage as compared to a competitor who is closer to a steel mill and also serves a nation wide market. If his finished product is bulky and costly to produce, distribute and service, the effect of the increased cost of freight on his incoming steel may be of much less importance than if his product was compact and heavy and locally distributed.

"The maker of refrigerators with nation wide distribution would probably find that the incoming freight on a ton of flat rolled steel in coils or bundles is a small factor as compared to the distribution cost on his finished refrigerator. Here it would seem that the building of properly located assembly plants and manufacturing plants would be warranted without too much concern as to distance from a steel mill.

"Products made from flat rolled steel are usually bulky and this means that the location of the manufacturing plant consuming flat rolled steel would be determined primarily by its closeness to its markets, rather than to the steel mill. If the demand was sufficient to keep a mill operating at an economical rate and the consuming area was far enough from the nearest strip mill, then it might pay to consider electric arc melting, thin slab ingots and single conversion from ingot to hot coil.

"Where the final product is relatively heavy, the freight charges on the incoming steel is an important factor in the finished cost, no matter who pays for it. Here the consuming plant distant from the steel mill has a more difficult time in meeting competition than one close to the steel mill. The ideal manufacturing plant location would be close to both the steel producer and the final purchaser. Such expedients as special low rates for a product fabricated in transit help overcome the disadvantageous location of steel buyer and his customer. It still is a fact, however, that if the demand for standard carbon steel products is high enough to support a small continuous rolling mill of really modern design and scrap and power are available, the billet type ingot will make it possible for steel to be made in the electric arc furnace and converted economically into the finished product right in the distant market."

stainless is no pipe dream

There's no reason to blow smoke rings of fantasy about stainless steels. Since stainless steel is a versatile *family* of steels, the right analysis must be used or stainless will not perform its "miracles" in your application. Crucible, pioneer in the development of these specialty steels, makes freely available to you an alert staff of metallurgists — experts in the application of stainless. Crucible's engineers and metallurgists can show you the right grade and finish you need . . . and how Crucible Stainless offers you maximum satisfaction.

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Elgin Dymo works faster and goes farther because precision graded particles of pure diamond, assisted by an exclusive Elgin vehicle, do the cutting. Elgin Dymo excels in actual shop convenience, too! It comes ready to use, each grade distinctly colored for instant identification, and it is universally soluble to simplify clean-up after polishing.

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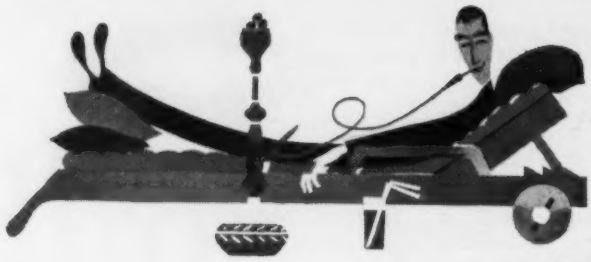
ELGIN, ILLINOIS



Fatigue Cracks

By CHARLES T. POST

New Equipment

Not all the interesting new equipment is described in the "New Production Ideas" pages of your f.f.j. For instance, there's the rubber garbage can for which National Enameling & Stamping Co. recently bought all rights from Plia-Pail Co. This means liberation for the harried husband who now has to stand and stamp on 45 gal of garbage in order to get it into a 30 gal pail.

Then there's the new stand-up plumbing for the ladies' room, recently introduced from Europe by American Radiator & Standard Sanitary, possibly a backward step.

Back At Work

As the custodian (that's the right word) for 5 cats, 2 dogs, 7 goldfish, and 1 chameleon, we can sympathize with Harold D. Gumpper, president of Ready-Power Co., Detroit, who found his plant's efficiency destroyed when a Great Dane waif, to whom the employees had become attached, disappeared last month. Mr. Gumpper finally discovered the pooch in the pound, bailed him out, had the vet give him the equivalent of a Helena Rubenstein beauty treatment, and made him vice-president in charge of scrap(s). Production soon jumped back to 100 pct and sales hit a new high with an assist from regular advertising in your f.f.j.

Puzzler

Visualizing the situation with the aid of the diagrams below you should get an answer of about 30,317 sq ft to Bernard Glowacki's problem of the grazing area available to a cow tied by a 100 ft rope to one corner of a barn 25 ft square.

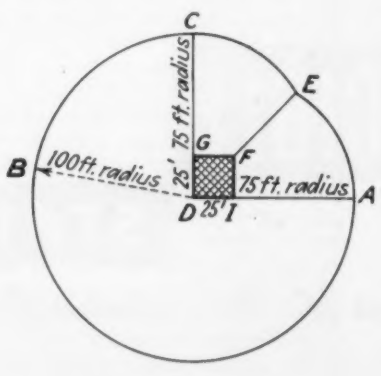
E. L. Sweet, Standard Gage Co., H. Kelsea Moore, Eaton & Howard, and E. J. Sampson, Brockton, Mass., all counted 25 trains on their trip from New York to Buffalo, as required by the May 11 problem, despite the rail strike.

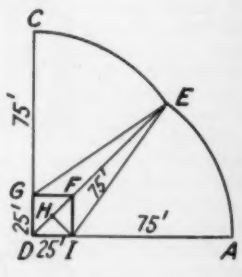
From Simon Grubman, State Metals & Steel Co., Inc., Canton,: Distribute $1000 in bills in 10 sealed envelopes so that any requested amount from $1 to $1000 can be paid upon request with the proper combination of envelopes. How much would you put in each envelope?

Aptronyms

Toledo Edison Company's John B. Cloer nominates that firm's publicity director, John Barker, for the aptronym roster. That will qualify, but the gentleman could improve himself with a circus sideshow.

Your f.f.j.'s Bob Reinhardt, says E. L. Bellows, a Seattle voice teacher, and Fred Belcher, of similar occupation at Portland, should be on the list. Bob's singing, it would seem from the suggestion, is concentrated on "Sweet Adeline" during the shank of a bibulous evening.





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MACHINE TOOL High Spots

Sales Inquiries and Production

By W. A. LLOYD

Index Shows Drop—New orders and shipments of machine tools in April fell slightly from March, according to the monthly index of orders and shipments of National Machine Tool Builders' Association. April orders dropped to an index figure of 99.1, about a 5 pct drop from the March index of 107.4. NMTBA's index of April shipments dropped to 61.7, about a 10 pct decline from the March index of 75.4.

April is seasonally a lower month than March. Domestic business is holding high levels of the past 2 months. It increased in April but foreign order volume has been falling off, particularly during the past 6 weeks.

Domestic volume has not been sufficient to offset this trend completely. Foreign business is available but U. S. machine tool builders are not getting it because of price differentials, resulting from devaluation and the availability of currency.

English D-Day—With the help of reduction in tariffs, an invasion of American machine tool markets by British machine tool builders, with Alfred Herbert Ltd. in the advance echelon, appears to be under way. First beachhead was a show in New York City, at Triplex Machine Co., distributor of the Alfred Herbert Ltd. turret lathe in this country.

Next landing will be at the Canadian International Fair at Toronto, May 29-June 9, where an estimated 50 to 60 British companies will show about 250 machines, many of them under power. Some undersell domestic machines by as much as 50 pct.

The Other Side—In New York, Jerome A. Raterman, president, Monarch Machine Tool Co., Sidney, Ohio, back from a 3-month tour of European machine tool markets, told a press conference that he does not expect any serious competition from European builders in the U. S. and Canadian markets, although a serious sales effort is being made.

According to Mr. Raterman, the European machine tool industry is doing well, with some companies having 6 to 8-month backlogs. Competition with U. S.-built machine tools in Europe and elsewhere is being promoted by trade agreements, currency regulations, dollar shortages, low labor costs and the ability to trade freely behind the Iron Curtain, he charged.

Sees Nothing New — Machine tool exhibits at the Industrial fairs at Milan and Basle had little new to offer, he reported. The mushroomed Italian machine tool industry is copying openly U. S. and German tools.

At the Leipsig Fair, some of the machines shown were superior to their American equivalents, Mr. Raterman pointed out. A strong cooperative trade association is aiding the recovery of the German machine tool industry in the Western Zone.

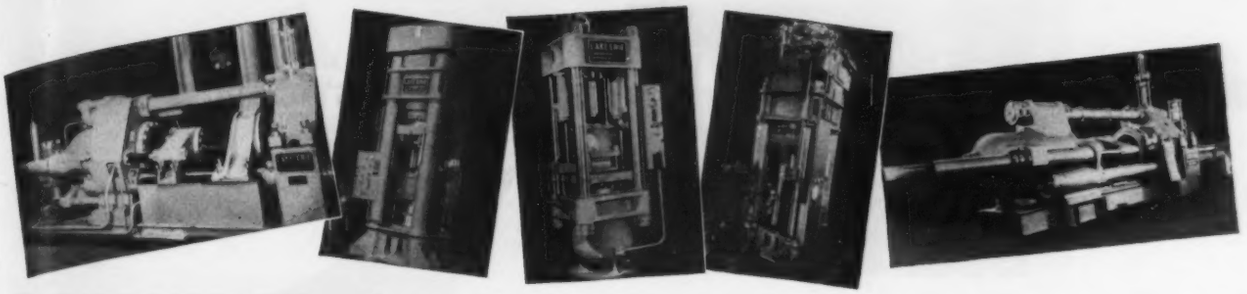
Order Backlog Up—In Bridgeport, Conn., net earnings of the Bullard Co. for the first quarter of '50 were $179,602, equal to 65¢ per share outstanding, Edward C. Bullard, president, reported. Inventories decreased $36,855 and the backlog of orders, as of March 31, 1950, was nearly 10 pct higher than the Dec. 31, 1949 level.

"So far there are no indications that the decline in business for the second half of the year, so freely predicted earlier, will affect our company's operations this year," Mr. Bullard stated in his report.

In Cleveland, National Acme Co. reported first quarter net of $316,899, equal to 63¢ a share after a $198,000 provision for Federal income taxes. This compares with $293,866 or 59¢ a share for the first qurater of 1949, after allowing $179,000 expenditure for Federal taxes.

New Entry—Manufacturing program expansion planned with the opening of the 13-acre A. B. Dick Co. Niles, Ill., plant goes forward with the firm's entry into the paper folding machine field. President A. B. Dick, III, reported that his firm had purchased the assets of the dissolved Boblit Folder Co., Inc.

Manufacturers of mimeograph machines and office equipment, the Dick Co. will produce the Boblit Folder, retitled the A. B. Dick Folder Model 55.



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New Steel Catalog

Current prices for Ryerson steels are contained in the new 1950-51 catalog, thumb-indexed for easy reference. To save time in figuring prices, size and quality extras have been combined wherever practical in the book. Users need only add the one combined figure to the base price of any product to quickly obtain the net cost. This also makes it easier to compare the costs of different steels subject to the same base price. *Joseph T. Ryerson & Son, Inc.*

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Automatic Polishing

Various models of Acme automatic Straightline polishing and buffing machines are described in a new 8-p. illustrated catalog explaining how automatic operation in this field cuts man-hrs to a minimum, maintains uniform quality finish and cuts unit cost. From the basic units shown in the catalog, an almost endless variety of lengths and arrangements of fixtures, polishing and buffing heads, belt heads and other elements can be furnished. *Acme Mfg. Co.*

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Bearing Care Explained

One of the most comprehensive discussions to date on the subject of bearing care, a new 20-p. booklet entitled "Installation, Maintenance, Removal of Anti-Friction Bearings" should prove of real value to plant supervisors and others responsible for maintenance of equipment containing anti-friction bearings. Since bearing failures are often due to mishandling and improper maintenance practices, this booklet is a handy guide to correct shop procedure that can increase bearing efficiency and eliminate many failures. *Anti-Friction Bearing Distributors' Assn.*

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Precision Holding Tools

How the Erickson chuck works, where it can be used to greatest advantage and how it can be adapted to your particular problem is discussed in an attractive new 36-p. catalog. Various types and models of chucks and mandrels are shown along with prices and complete descriptions. *Erickson Tools Div., Erickson Steel Co.*

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Any Size Anywhere

"Wellman Will Build It!" is the title of a new 20-p. picture booklet, graphically presenting examples of the variety of very heavy materials handling equipment and special machinery engineered and constructed in various parts of the world. Units shown include special machines and equipment built for the iron and steel industry, shipyards, dry docks, chemical industry, and bulk materials handling equipment for loading and unloading lake and ocean-going boats, as well as cranes for general cargo shipments. *Wellman Engineering Co.*

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Press Brake Dies

Spiral bound with thumb-tab index, a new 48-p. catalog shows a wide variety of press brake dies, and contains a section on piercing tooling. Tips on gaining maximum production on press brakes are an important feature of the catalog, as are the tables of tonnages required for various bending and punching operations. These tables show how to calculate proper width of sheets for various bends. *Cyril Bath Co.*

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Fire Fighting

Every 20 sec a fire breaks out somewhere in the United States! In the single year of 1948, the U. S. suffered fire losses of about $750 million. By combinations of automatic detection, alarm and release mechanisms Cardox fire extinguishing systems now provide industry with a high degree of automatic fire safety. These and other interesting facts about fires and fire protection are presented in a new 12-p. booklet. *Cardox Corp.*

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Tin Content in Solder

The Wheelco tin content indicator for solder, a portable checking instrument for quick analysis of solder quality, is described in a

Turn to Page 106

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PRODUCTION IDEAS

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Carbon Bearings

New carbon bearings of Morganite operate at temperatures up to 800°F without lubrication. Ability to function at high speeds under heavy loads makes them well adapted to steam pumps, turbines, industrial ovens and in installations where inaccessibility of bearings makes maintenance difficult and costly. Morganite has resistance to corrosion and chemical attack and high mechanical strength. *Morganite, Inc.*

For more data check No. 18 on postcard.

Fluted End Mills

New stock end mill types include a short fluted series available in two and four flutes, single and double end designs, and in sizes up to ¼ in. This design is said to have greater rigidity and mills are said to be less subject to breakage than other end mills of similar size. Faster feeds can be employed also. *Putnam Tool Co.*

For more data check No. 19 on postcard.

Grinding Wheel

The Norton reinforced hub wheel for portable grinders is designed for use on right angle portable grinders and disk sanders primarily in weld grinding and foundry operations. It is said to combine exceptional strength, safety, and durability with a fast rate of cut. The wheel is reinforced with layers of strong fibrous material between the layers of Alundum abrasive grain and resinoid bond. A strong composition safety web is molded onto the back, which serves to hold the wheel in the event of accidental breakage. *Norton Co.*

For more data check No. 20 on postcard.

Rust-Destroying Primer

A new liquid primer known as R-10-X is said to combine with rust to form a surface impervious to moisture, creating an excellent base for paint. R-10-X attacks not merely the top of a coat of rust, but is reported to work down into

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NEW PRODUCTION IDEAS

Continued

the metal's pores and neutralize the rust. The new primer may be applied by brush, or, for small areas, by wiping on with a cloth. *Thompson-Long Co.*

For more data check No. 21 on postcard.

Tempered Dial Glass

A new impact-resistant, special tempered dial glass that eliminates the need for protective metal guards is being used in Hydroscales, hydraulic crane scales. It is said to take severe blows without breaking, is stronger than plate glass, and will bend 20° without breaking. It absorbs thermal shock of 500° without breaking or distorting, making scales practical for uses where extreme temperature conditions exist. *Hydroway Scale, Inc.*

For more data check No. 22 on postcard.

Punch Press Tester

A punch press tester consists of a hydraulic device with a recording gage that is placed on the press bed to measure the ram pressure in tons either directly or through a die. Dial indicators located at both sides of the bed and contacting the gibways measure any frame deflection, at the same time. *L & J Corp.*

For more data check No. 23 on postcard.

Tube End Reducer

A new tube end reducer converts any standard Triple-lok fitting (37° flare, steel) to a reducing type. Attached with the standard nut to the fitting tube end, the reducer provides a flared nose for the smaller tube size, and threads for the smaller nut. Made in steel, the reducer is available in eight sizes: ⅜, ½, and ¾ in. to ¼ in. or to ⅜ in. tube; ¾ in. to ½ in. and 1 in. to ¾ in. tube. A brass tube end reducer is also available for use with Parker Triple brass fittings used with copper tubing. *Parker Appliance Co.*

For more data check No. 24 on postcard.

Utility Belt Conveyer

Standard units for assembling a horizontal belt conveyer of various lengths and widths consist of a drive unit with motor and control equipment, tail end with 4-in. diam crowned-face tail pulley and tracking idlers, H type stands with return idlers, choice of belt and standard 10-ft sections of roller or slider belt conveyer. Belts are solid woven cotton, stitched canvas, or rubber covered, 8 to 36 in. wide in increments of 2 in. Standard speed is approx 50 fpm. A variable speed drive is available. *Sage Equipment Co.*

For more data check No. 25 on postcard.

Protective Cream

Protection for workmen who are exposed to high radiant heat is found in a new protective cream, Ply No. 8. The cream which is applied to all exposed skin areas, reflects the radiant heat and is said to leave the workman without the hot sensation during exposure and the dry skin or burns that result after exposure. The cream is said to be completely water soluble; the employee removes it in the normal washing and cleanup. *Milburn Co.*

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Dust Control

A new liquid diffusion method provides low cost dust control and material conditioning. It is a three-step engineering job: Selection of the proper liquid diffusion compounds for the work to be done; the controlled proportioning of these compounds in the carrying medium—water, oil or other liquid; application of the solution at the right place, in the proper spray pattern, to produce the desired results automatically, effectively and economically. *Johnson-March Corp.*

For more data check No. 27 on postcard.

Carbon-Moly Electrode

An improved arc-welding electrode, the W-52, a reverse polarity dc rod is available in 5/32 and 3/16 in. diam for field trial. This carbon-molybdenum electrode is de-

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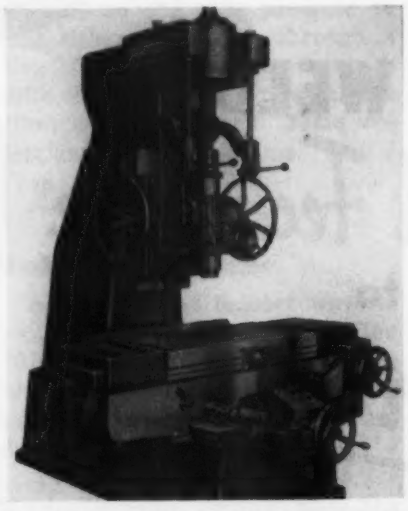
For more data check No. 28 on postcard, p. 37

Jig Borer

Automatic positioning is a feature of a new jig borer, designed to reduce the time for obtaining accurate setting of a jig borer table. With the use of duplicating bars a new setup of the machine will require approximately 1 min. The rapid traverse to table and slide is automatically engaged when using the positioning device. It is also possible to rapid traverse the slide and table simultaneously and automatically position the table and slide simultaneously. A separate micrometer adjusting block placed on the table and slide can be used to locate the center of the starting hole. The spindle is guaranteed not to exceed 0.0002 in. runout at the end of a 12-in. prov-



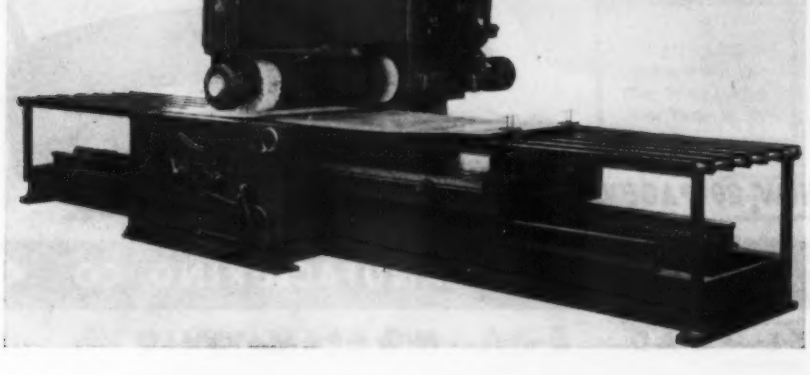
ing bar. Table working surface is 22x44 in. and has a travel of 18x42 in. Twenty-four speeds range from 30 to 1500 rpm. The machine is equipped with a 3 hp motor. It can drill, ream, bore and tap. *Fosdick Machine Tool Co.*

For more data check No. 29 on postcard, p. 37

Sheet Buffing Machine

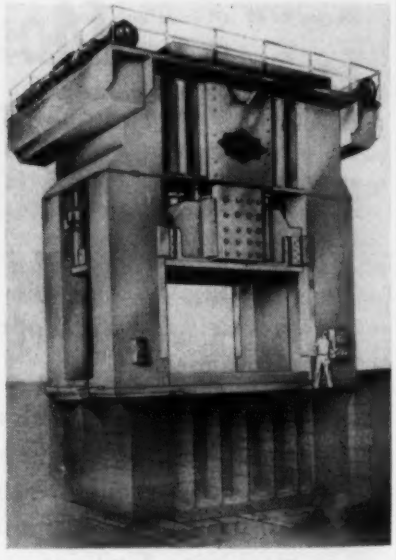
Recommended for heavy-duty protection finishing of ferrous and nonferrous sheets, a new 48-in. wide openside oscillating type sheet buffing machine with hydraulic table has a power elevating and lowering head for an 18-in. diam buff roll or Tampico brush roll. The oscillating mechanism is powered by a 3 hp motor and has a stroke variation from ½ to 2 in., and a range of 50 to 150 cycles per min. The main spindle is powered by a 50 to 100 hp main drive motor. The machine is built in table widths up to 72 in. and table lengths of 8 ft and over. *Hill Acme Co.*

For more data check No. 30 on postcard, p. 37



Giant Metal Drawing Press

An 8000-ton triple action hydraulic press now being built has superstructure 36 ft high and extends 12 ft beneath the flooring. With its underground base the press will weigh more than 3½ million lb. Die space area measures 30 ft 4 in. from left to right and 10 ft from front to back. Press bed and crown are single-piece all-welded construction; the tie rods and main cylinders, forgings; and the rest of the press is made of steel castings. Length of the forming stroke is 5½ ft and working space inside the press when slides are raised measures 7 ft. It has a 5000 ton draw plus 3000 ton blankholder pressure, with a cushion pressure of 2000 tons. With the new press sheets of high strength, lightweight aluminum



alloys and stainless steel can be fabricated in larger sizes and many costly, time-consuming riveting operations can be eliminated. Sequence of operation from single to double action, and speeds and pressure changes are pushbutton controlled. The machine is powered by one 75 hp and two 250 hp motors. *Birdsboro Steel Foundry & Machine Co.*

For more data check No. 31 on postcard, p. 37

Table Core Grinder

A new core grinder features a 48-in. round table mounted on large precision roller bearings, built for fast, accurate core grinding. The bearings are completely enclosed,

Turn to Page 110

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Iron Age *Introduces*

ALBERT P. HAYDEN, who becomes superintendent of wire rope and tramway engineering, American Steel & Wire Co.

RICHARD H. LEUKART, appointed assistant secretary, National Screw & Mfg. Co.

HOWARD E. MORISON, newly appointed manager of agricultural sales division, Crucible Steel Co. of America.

Dr. George Sachs' appointment as vice-president of HORIZONS INCORPORATED was recently announced. At the same time, **Dr. Jacob Louis Snoek** was added to the organization's physics department staff.

John R. Chandler is withdrawing from his association as partner with PICKANDS MATHER & CO. due to ill health.

Nathan M. Levinson was appointed to the field engineering staff of the SPRAGUE ELECTRIC CO., North Adams, Mass.

Earl H. Lenz becomes vice-president in charge of bus production and engineering at TWIN COACH CO., Kent, Ohio, and Fort Erie, Ontario. Mr. Lenz has been chief engineer and assistant to **John J. Lee**, vice-president in charge of manufacturing, for the past year.

John A. Herr was made assistant superintendent of the wire rope and tramway engineering department of AMERICAN STEEL & WIRE CO.

John E. Carnahan has been named vice-president of the spun steel division of AUTOMATIC STEEL PRODUCTS, INC., Canton, Ohio.

Paul W. Best is the newly appointed director of industrial relations for NATIONAL SCREW & MFG. CO., Cleveland.

John M. Urban, foundry superintendent and metallurgist for the FANNER MFG. CO., has been appointed a technical service representative in the coke sales department of DIAMOND ALKALI CO.

Aaron P. Levinson was elected president of the LEVINSON STEEL CO., Pittsburgh, succeeding his father, **S. M. Levinson**, who resigned to become chairman of the board. **Jack Levinson** will serve as secretary-treasurer.

E. W. Donkel was elected president of KENT-OWENS MACHINE CO., Toledo, to fill the post vacated by the death of his father. Mr. Donkel came to the company in 1937 and has served as vice-president and general manager for the past 6 years.

Stratford B. Biddle, Jr., and **Ira F. Omwake, Jr.**, are serving as manager and assistant manager, respectively, of the recently established Seattle office of LEEDS & NORTHRUP CO., Philadelphia.

Thomas A. Hammer, Jr., and **Irving R. Warshow** were promoted to the posts of assistant treasurer and assistant controller, respectively, of the DOEHLER-JARVIS CORP.

Maurice Nicholls has become affiliated with the staff of Kaiser Engineers Div. of KAISER INDUSTRIES, INC. Mr. Nicholls has been associated with Kaiser enterprises since 1939, when he became chief consulting engineer for all Kaiser shipbuilding projects.

Thomas Whelan, Jr., has been appointed district sales manager for the Houston, Tex., office of the PATTERSON FOUNDRY & MACHINE CO., East Liverpool, Ohio.

Lloyd J. Hughlett has joined the staff of ARTHUR D. LITTLE, INC., Cambridge, Mass.

Walter H. Bramman has joined the sales force of the BLACK & DECKER MFG. CO. Mr. Bramman will be located in Spokane, Wash., working with the company's electric tool distributors in the eastern part of that state as well as in all of Montana and Idaho, east of Boise.

Stuart Hatch, formerly sales representative in the St. Louis sales office of the Spang-Chalfant Div. of the NATIONAL SUPPLY CO., has assumed similar duties in the Pittsburgh district sales office.

R. S. Skinner, Los Angeles sales representative for the Spang-Chalfant Div., was transferred to St. Louis.

Edward R. Bergin has been appointed sales engineer in the New England district by PETERSON STEELS, INC., Newark, N. J.

C. E. Mead was recently elected vice-president of LEAR, INC. All other officers of the organization were re-elected.

L. A. Ver Bryck has joined the SUPERIOR IRON WORKS & SUPPLY CO., INC., Shreveport, La. as eastern divisional sales manager. Mr. Ver Bryck was formerly Chicago district manager of PITTSBURGH STEEL CO., Pittsburgh, and before that he was New York district manager.

Howard L. Clary, formerly sales manager, has been appointed vice-president in charge of sales of the NORGE CO.

Victor W. Blackney becomes branch manager of the recently established sales office in Detroit of NATIONAL RADIATOR CO., Johnstown, Pa.

H. O. HOLLAND, elected vice-president in charge of sales of all divisions, Automatic Steel Products, Inc.

Iron Age Salutes

BENJAMIN F. FAIRLESS

THERE are probably a lot of reasons for saluting Ben Fairless president of U. S. Steel Corp. But his fighting speech at Baltimore recently when he let go at Washington theorists was the best he ever made. Reactions from all parts of the country confirmed this.

Why was it so good? He said a lot of things other people had said or thought. It must have been the way he said it, the vigor he used and the audacity of letting Washington have it in their teeth.

Ben Fairless has always had a flair for this sort of offensive. But he is a man slow to anger. He feels that his job carries a lot of responsibility to the public, to employees and to stockholders. Recent inquisitions at Washington were too much for his blood.

Now he is aroused because he feels that the threat to steel is a threat to all industry. As long as he lives he hopes to stem this trend towards control by default. If he has anything to say or do with it the straight-jacketing of industry will be over his dead body.

But what Ben may or may not know is how big a lift his Baltimore speech and his remarks to the Celler monopoly committee have given to other industrialists. There was no pulling of punches in Mr. Fairless' talks. There was no worrying over what this or that person may think. It was on the line.

Ben Fairless now appears to be imbued with the crusading spirit. If that's true, and we think it is, he will have a lot of business people behind him.

By his own statement he has no skeletons to hide. He believes what he says. It looks like he gave the Celler Committee a setback it won't forget for awhile.

Being a fellow who has had many jobs in steel—and has not forgotten what people think—Ben Fairless is perfectly aware that business' fight to be heard and understood is a continuing one. He knows he must have all the help he can get—help that is based on factual down-to-earth talks to everyone who will listen.

That is hard work. He is willing to do it. He will get some bloody punches before he is through. Sticking one's neck out for truth usually brings punches. But it's the only way to get the job done.

Iron Age Introduces

Continued from Page 55

LORNE L. CASKEY, made manager of tin plate sales division, Republic Steel Corp.

John Neuman has accepted appointment as plant manager of MIDLAND DYE & ENGRAVING CO., Chicago.

Robert W. Kerr has been elected president and chief executive officer of BINGHAM-HERBRAND CORP., Fremont and Toledo, Ohio, succeeding **Louis E. Yunker**, who has retired. **David R. Feemster**, vice-president of the corporation, has been appointed general manager of the Bingham division. **Edward E. Parsons, Jr.**, of Cleveland, was elected chairman of the board. **Roland J. Ahern**, president of BILLINGS & SPENCER CO., a subsidiary, has also been elected to the board.

William Deans, chief engineer of the I-T-E CIRCUIT BREAKER CO., Philadelphia, has been elected vice-president in charge of engineering. **Gus E. Heberlein**, who has been chief engineer of I-T-E's subsidiary, RAILWAY & INDUSTRIAL ENGINEERING CO., Greensburg, Pa., has been appointed manager of the switchgear division of the parent company.

George O. Hendee was transferred to the post of field service and sales engineer in New England for HANNIFIN CORP., Chicago. He succeeds **Elliott D. Thompson**, who has resigned. Mr. Hendee's former position in Philadelphia was filled by **Joseph O'Malley**.

Frank W. Curtis became chief engineer of the machine tool division of the VAN NORMAN CO., Springfield, Mass.

John C. Mevius is the new sales manager of the hydraulic division, AMERICAN ENGINEERING CO., Philadelphia. He will be assisted by **G. A. Fleck**.

Donald S. Gaarder was named assistant general manager and **Lee Cotton** coordinator of technical operations of the industrial finishes division, SHERWIN-WILLIAMS CO. Mr. Gaarder will assist **G. L. Hehl**, general manager of the division, and Mr. Cotton will handle liaison between the main office in Cleveland and the company's many laboratories.

Clyde O. DeLong, sales manager of the plastics division of the B. F. GOODRICH CO., has been named general manager of the division in charge of manufacturing and sales.

E. M. Platts, sales vice-president, has been elected executive vice-president of the JOY MANFACTURING CO. to succeed the late **Arthur S. Knoizen**.

Richard Collins and **Robert Furrow** were added to the service engineers staff of KLEM CHEMICALS, Detroit.

Erson V. Ogg was named to the post of director of industrial engineering for CHASE BRASS & COPPER CO., INC.

Albert E. Bickell has been appointed assistant district sales manager of GENERAL REFRACTORIES CO.'S Pittsburgh office. **George L. Peck** will replace Mr. Bickell in the Philadelphia office.

George R. Weber was elected treasurer of RAYBESTOS-MANHATTAN, INC., succeeding **W. H. Dunn**, who has retired. **W. S. Simpson** was elected secretary and **W. Ward Kievit** a director of the corporation.

J. L. Hiers assumes the duties of district sales manager in northern New Jersey, New York and western Pennsylvania for the WOODHOUSE CHAIN WORKS, Trenton, N. J.

Beach Williamson was appointed controller of the dealer development office, FORD MOTOR CO.

Rudolf Lowit has been elected by NORTH AMERICAN PHILIPS CO., INC., as vice-president in charge of its Elmet Div. Mr. Lowit was formerly general manager of the division, which is located at Lewiston, Maine.

WILLIAM A. KISSOCK, elected vice-president of industrial relations, Hotpoint, Inc.

Earl D. Studer has been named administrative manager of the KAISER-FRAZER CORP. sales department. **James A. Currie**, former assistant distribution manager, has been appointed to Studer's former post, manager of distribution. **Neil H. Van Dyke** has been advanced from distribution supervisor to assistant distribution manager.

Dr. Everett P. Partridge, director of research of HALL LABORATORIES, INC., and CALGON, INC., has been named director of HALL LABORATORIES, INC.

L. D. Whitescarver has been appointed assistant manager of the Lynn, Mass., turbine and gear sales division of GENERAL ELECTRIC'S turbine divisions. Succeeding him as manager of the Fitchburg, Mass., turbine sales division is **F. S. Kohl**, formerly assistant manager of that division.

W. O. Lippman, a vice-president of WESTINGHOUSE ELECTRIC CORP. and formerly in charge of plant labor relations, becomes head of the Westinghouse Elevator division at Jersey City, N. J. Vice-President **Tom Turner** comes from the elevator division to take charge of plant labor relations with headquarters in Pittsburgh.

M. W. Kreeger has been named vice-president and general manager of LEMPCO AUTOMOTIVE, a subsidiary of LEMPCO PRODUCTS, INC., Bedford, Ohio. **C. D. Burdette** has been made advertising manager of the organization.

Arthur M. Brunninga has been named Chicago district manager for AMERICAN KITCHENS.

Can Assembly Line Techniques Be Applied to a Pension Plan?

The objectives of every pension plan may be the same. But the methods used to arrive at these objectives may vary greatly from plan to plan.

For example, in one company the average age of those to be covered by the pension plan may be much higher than the average age of employees in another company. The average length of service in two companies can be as different as day is from night. These factors call for special treatment, particularly in selecting the method of funding past service costs.

The most effective pension plan takes into consideration the different conditions that must be met in each company. The plan is then built step by step to meet these individual conditions.

City Bank Farmers Trust Company has assisted hundreds of companies with their pension planning. That experience is yours for the asking. As a starter, let us estimate the cost of a pension plan for your company. Consult any of our officers. There is no obligation, of course.

We act as trustee under pension plans and as agent for individual trustees. Send for our Pension Booklet.

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On the ASSEMBLY LINE

AUTOMOTIVE NEWS AND OPINIONS

Buick produces its 500,000th Dynaflow transmission . . . GM investing more than $50 million in its new Technical Center . . . Auto industry pays $5 billion to its suppliers

By WALTER G. PATTON

On Way Out—The number one question about automatic transmissions is: when will they succeed the synchromesh units? This week on the occasion of the production of the 500,000th Dynaflow, Ivan L. Wiles, general manager of Buick Div., made the prediction that within 5 years the present synchromesh will have just about disappeared.

Backed by production experience dating back to January 1948, Mr. Wiles is in as good a position as anyone to tell when "automatic driving" is likely to supersede the present manual shifting.

New Experience—Mr. Wiles has a nice descriptive term to fit the situation. He calls automatic driving "starting without a lurch." His basic argument is that the automatic drive offers a new experience to the motorist and that the public demand is already so well established that the new drives must certainly continue to replace manual transmission units.

Buick made just 146 of the new transmissions during the first month of production in January, 1948. Now 40,000 units are being made every month. The Buick Roadmaster is 100 pct equipped, Wiles said, and 90 pct of the Buick Supers have the new drives. The Dynaflow plant is operating 7 days a week practically 'around the clock.

Pound for Pound—Buick does not feel that the substitution of 16 cent aluminum castings for, say, 7 cent gray iron plus the close manufacturing limits that have to be held will ever permit the Dynaflow price to reach the synchromesh level. However, Wiles pointed out that, pound for pound, a Buick is available today at the same price per lb as cars in the low priced field.

Buick, he said, is shooting at a target of 500,000 cars in 1950 and third place in the industry which it has recently taken from Plymouth.

Exports Fall—The current magnitude of General Motors operations is well-illustrated by a few facts disclosed for the first time by Alfred P. Sloan, Jr., at the annual meeting of GM stockholders. For instance, GM's postwar construction program called for expenditures for plant and equipment of more than a billion dollars.

GM Overseas shipments have continued to decline from 179,000 in 1948 to 112,000 in 1949. Meanwhile, England with 10 pct of the auto capacity of U. S. is currently exporting more vehicles than U. S.

Change Possible—GM has no immediate plans for a light car, but this is not a closed subject so far as General Motors is concerned. When GM can justify a light car either in an economic sense or a commercial, Sloan said, the present position of the company may well change.

The new Technical Center GM is building on Mound Road outside Detroit will involve an investment of more than $50 million. Sloan emphasized that the new center will in no way supersede the GM divisional engineering and development facilities.

Plans to Lead—Rather, it is designed as an activity aimed at providing "advanced engineering

and more effective operating techniques," with facilities and personnel normally outside the scope of a GM division. "The leadership in the automobile industry—all things being equal—will go to that organization best able to create and capitalize technical progress," Sloan told the GM stockholders.

K-F Speeds Up — To meet the current demand for its 1951 Kaiser models, Kaiser-Frazer is moving into a 45-hr week at Willow Run. Production is now well over 600 per day and present plans call for a continued acceleration in schedules. Employment is now back to 11,000 and every foot of the Willow Run plant is occupied, in addition to facilities the company has acquired at other locations.

The Henry J.—Current production will be concentrated on the 1951 Kaiser line, with the new low priced Henry J. models coming along late in June or early in July.

Two lines will be operated at Willow Run: the Kaiser and the Frazer will occupy one line and the new low priced jobs will come down the second line. K-F now has the only plant in the industry in which the body plant and the assembly line are under one roof.

Big from Small—The Automobile Manufacturers Assn. has just completed an analysis of the suppliers for the big auto industry. Most of the suppliers are small business, AMA says.

About 90 pct employ less than 20 persons. Together, these suppliers provide jobs for more than 9 million wage earners. More than 5000 parts and about 15,000 separate items go into the average passenger car.

Payments Large — Last year, AMA says, the industry paid an estimated $5 billion to its suppliers or about half its total dollar receipts. A year's production of automobiles provides a market for $100 million in radios, $13 million in clocks and more than $70 million in woolen fabrics. Incidentally, the garage door business is nowadays a $7 million each year field. More than $110 million is spent annually for auto body polish.

Ford Insures—The Indianapolis race scheduled for Memorial Day has revived many of the stories of earlier events at the Indianapolis speedway. For example, back in 1924 when the late Henry Ford was official referee, he personally underwrote $10,000 insurance policies of each of the drivers.

At the first Indianapolis race in 1911, a Stoddard-Dayton pace car made the run at 40 mph. The Mercury which will pace this year's race with Benson Ford at the wheel is expected to hit 100 mph as it crosses the wire.

Industry Riddle — The mystery as to whether or not Chrysler has acquired more than 4000 acres of ground outside Ann Arbor to be used for a proving ground is still officially unsolved. However, all the bets are being laid that Chrysler Corp. will eventually be identified as investing more than $1 million for this very large tract of land.

The Washtenaw County Board of Road Commissioners has recently been asked to close four roads going through the grounds. The Board has declined to do so until the name of the purchaser is disclosed. Buying of the land by a Detroit real estate agent began in September, 1947, and has been going on quietly ever since.

Thriving—March and April Nash deliveries have been 30 pct above 1929, the best previous spring sales period in the company's history, stated H. C. Doss, vice-president in charge of sales. Doss also reported that factory schedules for the rest of 1950 call for an even greater output.

At Zenith — GMC April truck production reached an all-time zenith, reports Roger M. Kyes, newly-appointed general manager of this division and vice-president of General Motors.

THE BULL OF THE WOODS — By J. R. Williams

MAKIN' COWBOY SPURS ON COMPANY TIME, HAH! OKAY, LET IT END THERE! DON'T YOU LET ME KETCH YOU TRYIN' TO MAKE A HORSE TO GO WITH 'EM!
IT'S AWFUL TO HAVE A BIG BROTHER KEEPIN' A CLOSER EYE ON YOU THAN SIX BOSSES, FOR FEAR YOU'LL RUIN YOUR CAREER!
TH' BEST MACHINIST I KNOW LEARNED MORE MAKIN' STUFF FOR HIMSELF THAN HE DID FOR TH' COMPANY!
MACH
OIL
J.R.WILLIAMS
THE UNDERCOVER ARTIST 5-26
COPR. 1950 BY NEA SERVICE INC.

More operations per cycle mean LOWER COST PER PART!

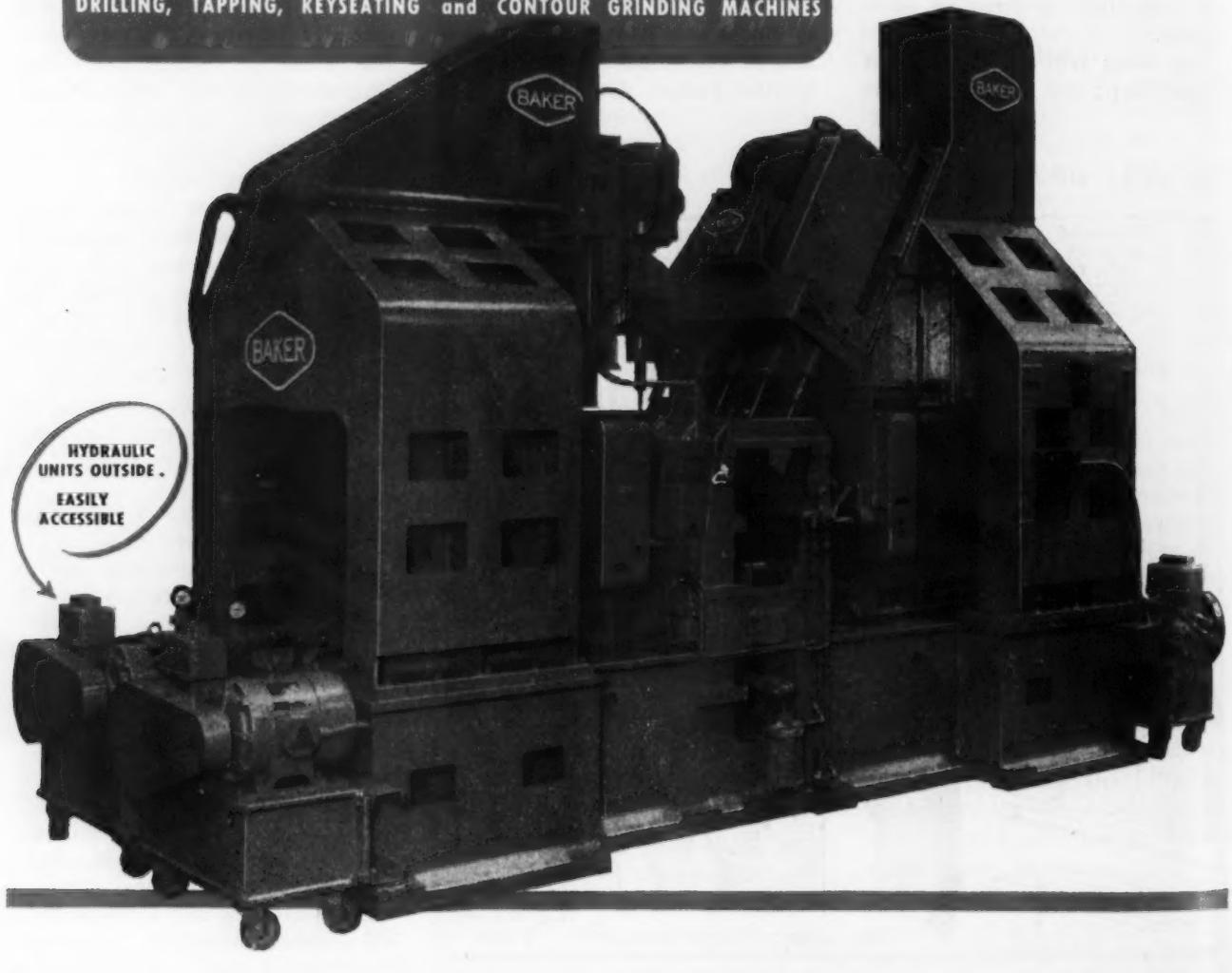
BAKER SPECIAL MACHINES

Baker production machines offer unlimited opportunity for reduction of drilling, boring, reaming, and tapping costs. The new 16 spindle Baker machine illustrated performs 16 individual operations simultaneously on automobile cylinder blocks. Drilling, boring, reaming and countersinking operations are accomplished from vertical, horizontal and angular planes by 4 standard Baker units. The machine is conveyor fed with automatic clamping. Cycle time: 80 parts per hour at 100% efficiency—.75 per piece including loading and unloading time. Consult Baker engineers . . . cut your production costs through increased productivity.

SINCE 1867 . . .

BAKER BROTHERS, INC., Toledo, Ohio

DRILLING, TAPPING, KEYSEATING and CONTOUR GRINDING MACHINES



WEST COAST PROGRESS REPORT

Digest of Far West Industrial Activity—By R. T. REINHARDT

All Is Not Gold—Sobering to the overly optimistic, and depressing to those already pessimistic, were the remarks of Dr. J. E. Hobson, executive director of the Stanford Research Institute, before a manufacturers' conference held in Berkeley, Calif., last week. Drawing upon data supplied by Dr. Weldon B. Gibson, chairman of the Dept. of Business and Industrial Economics at the Research Institute, Dr. Hobson reported that the outlook for new western industrial expansion in the immediate future is not good although the long term prospects are better.

He said private investment will continue to decline from the 1948 high of almost a billion dollars a year to a low of perhaps half that amount by 1953; but after 1954 the rate of investment should begin to rise and perhaps by 1960 will exceed the 1948 level. A decline in the total income in the West is expected for 2 or 3 years to be followed by new highs in 1956 or 1957.

Justly Proud—Operations men of two of the nation's newest integrated steel plants had good reason last week to do a little strutting: Geneva Steel Co.'s four blast furnaces at Geneva and Ironton reached an all-time daily high in pig iron production May 15 when the three Geneva furnaces turned out 3480 net tons compared to a previous high of 3434 net tons, and the Ironton furnace produced 758 net tons to break its previous high of 752 net tons.

Not to be outdone, Kaiser Steel Corp. announced that the five millionth ton of steel had been produced at Fontana since the open hearths started operations there in May, 1943. To pour the first million tons required 23 months after the opening of the first of the five open hearths, whereas the last million tons was produced in only 11 months, which represents a record for any Pacific Coast steel company.

Healthy Sign—A marked improvement in machine shop business is noted in the Seattle area and is attributed primarily to increased activity in the lumber and fishing industries. Principal interest to machine tool manufacturers is that many of the shops are making inquiries about and actually purchasing new equipment which they have been hesitant to buy because of locally depressed conditions.

Eastward Ho!—Western users of steel plate who had hoped supply would ease somewhat when Consolidated Western Steel Corp. completed its 1084 mile long pipe line for Trans-Arabia next month, last week were disappointed when they heard of the contract for almost 500 miles of 30-in. and 32-in. pipe to be fabricated by Consolidated for the Iraq Petroleum Co. Ltd.

Approximately 166,000 tons of steel plate will be needed by Consolidated's plant at Maywood, Calif. The previous larger order required some 2 years to fabricate and the present contract will probably not be completed for at least a year. Both foreign and domestic pipe line orders continue to absorb most of the plate production of both Geneva Steel, Utah and Kaiser Steel at Fontana, Calif. Neither producer has much to offer on the domestic plate market.

Good Lifting—Crane operators in scrap yards of the San Francisco Bay area last week lifted themselves by their own hoists from $2.21 an hour to $2.35 an hour and also pulled out of the employers' pockets three paid holidays. Operating Engineers Local No. 3 signed a contract with scrap yard operators to that effect after having gone without an increase since January, 1948.

In January, 1945, they asked for a 9¢ increase and the employers countered with a 4¢ increase but no contract was negotiated and the recent settlement was based on the argument that the 14¢ raise was justified. Coastwise scrap dealers are voicing increasing complaints about the high cost of scrap preparation in view of the prices obtainable from local steel producers. The rise in scrap prices will be felt on the Coast in July.

THE FEDERAL VIEW

THIS WEEK IN WASHINGTON

By EUGENE J. HARDY

New England Steel — Endorsement of Federal aid for an integrated steel mill in New England might be forthcoming from White House sources within the next few months. Proponents have long hoped for a nod of approval from the Executive offices.

They almost made it last fall when the high command of the Democratic party was slated to get on the bandwagon at a big party rally in Boston, but the affair was cancelled. The expected boost for the New England mill would result from a study of the area's present economic status now being conducted by a group of New England economists at the request of the chairman of the President's Council of Economic Advisers, Leon Keyserling.

Ardent Drum Beater — One of the economists included on this committee of experts on the New England economy is Alfred C. Neal, of the Federal Reserve Bank of Boston, the most outspoken drum-beater for a New England mill.

The scope of the study includes government aid to spot unemployment, exploitation of possible new industries and existing natural resources, and the obstacles to expanded development. The committee is expected to make its final report to the Council by Aug. 1.

Emergency Controls — Mobilization planning officials have not been sold on the idea that price ceilings, overall company pricing, broad use of cost-type contracts and other policies imposed during the last war would be adequate under a new emergency.

The Munitions Board has started a pricing and profit study, hoping to find a better combination of methods. It hopes to find better incentives, fast mobilization, more economy, and "fair" profits—with less military control.

No Funds for Taconite — Federal funds for taconite beneficiation aren't in sight yet, despite the "national defense" arguments presented to Congress. But Congressman Blatnik, D., Minn., isn't giving up easily. The program he's trying to sell the House would permit the RFC to make 30-year loans for development and production of taconite.

Under existing law, all RFC loans must be repaid within 10 years. Blatnik also proposes payment of interest and amortization of the loans on a unit-of-production basis. At least a dozen similar proposals will probably be introduced before Congress adjourns.

Steel Probe — There's a good possibility that one phase of the steel industry probe being conducted by trust-busting Rep. Celler, D., N. Y., may soon be blown higher than a kite. While the investigation has produced less than Mr. Celler had hoped for, probable revelations will discredit the fishing expedition even further.

U. S. to Buy Canadian Arms— The Defense Department has found a way around the provisions of the "Buy American" clause in U. S. law so as to permit U. S. military forces to buy Canadian manufactured military weapons and supplies. While the "Buy American" clause generally prohibits such purchases outside the U. S., the new program will be within the mean of "public interest" as defined in the law, according to Defense Dept. officials.

Defense Secretary Johnson has ordered the Munitions Board to work out procurement schedules, under which the three military services will buy $15 to $25 million worth of Canadian arms during the fiscal year beginning July 1. Canada will buy a like amount of military equipment in the U. S.

While the program has been cleared with Administration leaders on Capitol Hill some squawks from Congress can be expected. The U. S. decision to buy in Canada clears the ground for the next move which will include joint plans for use of industrial resources and a joint stockpile of strategic and critical materials.

No Subsidies—Domestic copper, lead, and zinc production will have to get along without Federal subsidies for at least another year. Mining-state congressmen have tried—and failed—three times this year to get a Federal subsidy bill approved by Congress.

A fourth proposal, asking only half of the amount originally sought, is now pending before the House Public Lands Committee, but there is no indication that its chances are any better than the three previous legislative plans which failed. This latest "half-a-loaf" proposal carries an authorization for funds of $165 million to be spent on mine and mineral subsidies over a 4-year period. New legislation is also being prepared on the Senate side of Capitol Hill.

Fork Truck Attachments

INCREASE VERSATILITY

By STEPHEN BAUR
Associate Editor,
THE IRON AGE

Standard trucks perform special handling jobs through use of interchangeable attachments. These units, the mechanical hands and fingers of materials handling, release trucks from single confining operations. They eliminate the pallet return problem.

Illustrations courtesy Yale & Towne Mfg. Co.

A MULTIPLICITY of special lifting, transporting, stacking, and dumping operations can be performed on standard gas or electric hydraulic fork trucks through the use of interchangeable material handling attachments. These attachments allow fork trucks to be released from single confining operations and permit them to handle many types of commodities. Only a short changeover time is necessary for a standard truck to be re-equipped for another special function. In addition to this flexibility, these attachments do away with the problem of pallet return or the development of cheap expendable pallets.

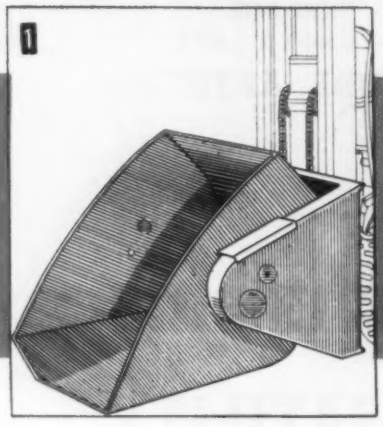
The various uses to which these attachments can be put include the handling of: (1) *Dense objects* such as molten metal, forgings, castings, train wheels; (2) *bulky objects* such as cotton bales, drums, crates, paper rolls; (3) *loose bulk materials* such as sand, lime, coal, ore, steel scrap; and (4) *hard-to-handle items* such as wire coils, bar stock, cinder blocks, industrial batteries. In fact, most heavy or bulky industrial items needing transport can be quickly and efficiently handled by fork trucks equipped with the proper attachments.

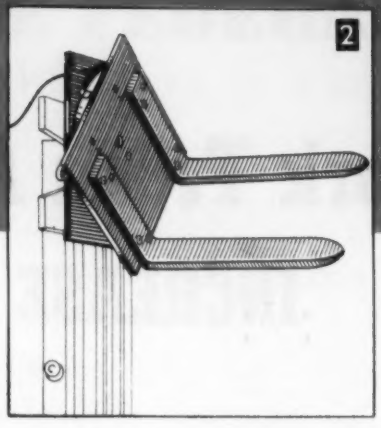
The hydraulic systems on industrial fork trucks include equipment that will lift and lower the forks and tilt the mast back and forward. These trucks usually have extra outlets for the hydraulic hose connections necessary for control and operation of the attachments.

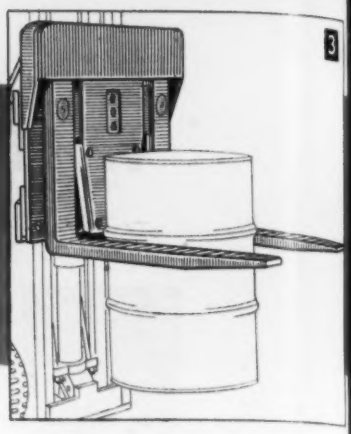
The capacity loads of these interchangeable attachments are in all cases limited only by the particular size truck used. Most common fork truck capacities are 2000 to 4000 lb. Less common, but still standard, are those running up to 8000 lb capacities. Special trucks in use and being built have capacities as high as 80,000 lb. The height of most standard fork truck masts is over 7 ft in collapsed position and over 10 ft in extended position. The lifting and transporting of material through the use of fork truck attachments is limited by the weight capacity and mast extension.

For handling of bulk material such as coal, ore, sand, gravel, chemicals, lime, and other forms of loose material without the use of boxes, kegs, barrels, or pallets a hydraulically operated scoop may be attached to the truck, see **1**. Standard scoops, hold about 27 cu ft of bulk material. They rotate upward to hold the load during transport and rotate downward for dumping. Dumping can be accomplished from any height on the mast.

A hydraulically operated rotating carriage device, **2**, is used to pour liquids and molten metals and to dump material contained in bins. Rectangular tubes on the bin are engaged by the forks of the attachment to prevent the load from







Fork Truck Attachments

Continued

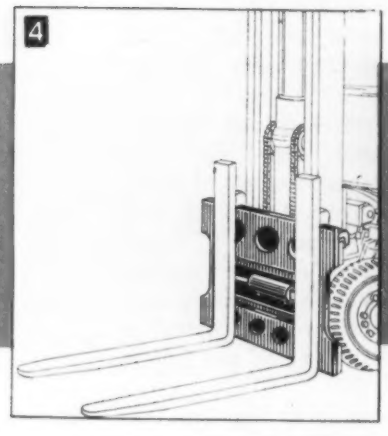
falling off during rotation for pouring or dumping. A hydraulic motor rotates the fork carriage.

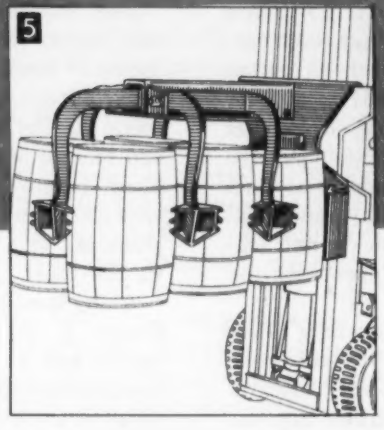
The load-hugger attachment, **3**, permits the forks to pick up loads without the use of pallets by means of a pinching action. Each fork pivots about a point near the top of the leg that is secured to the carriage. Loads such as drums, bales, crates, and other rectangular and circular items can be picked up with this unit.

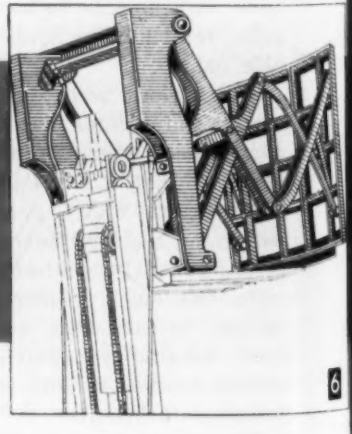
For setting down loads close to walls and pillars and in confined areas such as freight cars the side-shifter attachment can be used, see **4**. It is of particular advantage in positioning loads when the load is narrower than the width of the truck. This particular attachment does not have to be removed for normal pallet handling.

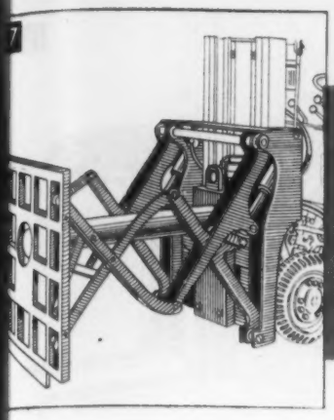
The handling of kegs, small drums and cylindrical cardboard containers without the use of pallets can be accomplished through use of a hydraulically operated multiple-keg handling attachment shown in **5**. Hydraulically actuated mechanical linkages move the fingers for picking up and discharging the load. Typical application of this handling device are the loading and unloading of freight cars and street trucks without first having to manually place the load on pallets or skids.

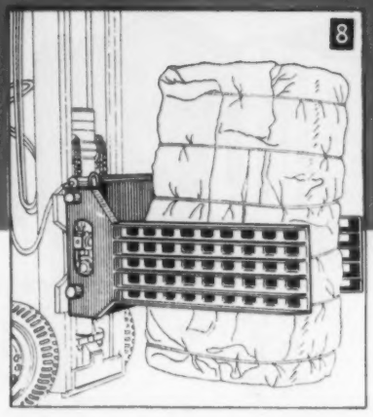
Hydraulic cylinders operate the pusher attachment, **6**, that unfolds and shoves loads of drums, bales, cartons, barrels, boxes, kegs in multiple units off the forks of the truck. Pallets can be eliminated when handling smaller loads by placing a metal plate over the forks and stacking the goods on this plate. The load can then be pushed off leaving the plate on the forks. Pallets are not needed when handling large loads that straddle both forks. A similar attachment is used on a ram truck, see **7**. Coils, pipe and shells carried on the ram of the truck are shoved off by the pusher mechanism.

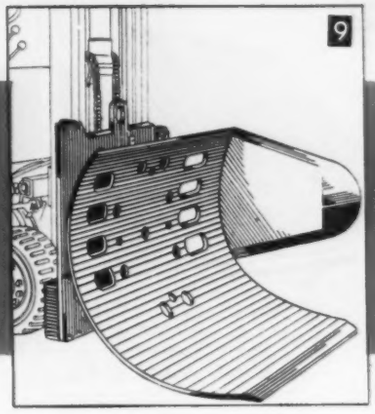








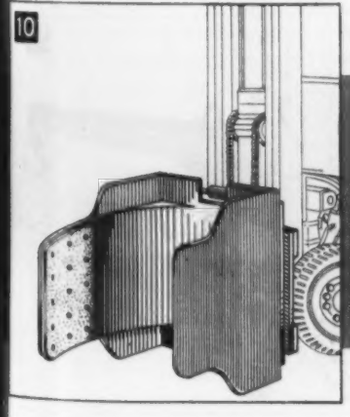


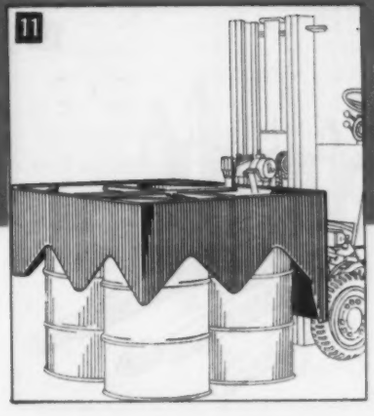


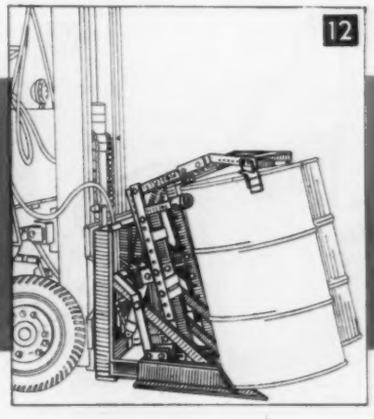
Bales, large crates, and cardboard containers can be easily handled without pallets through use of the large hydraulically operated clamping attachment shown in **8**. This device can be quickly attached or removed from the fork carriage. The clamp opens to 72 in. and is controlled by a 1000 psi hydraulic system. Height to which the material can be raised is limited only by the extended height of the mast.

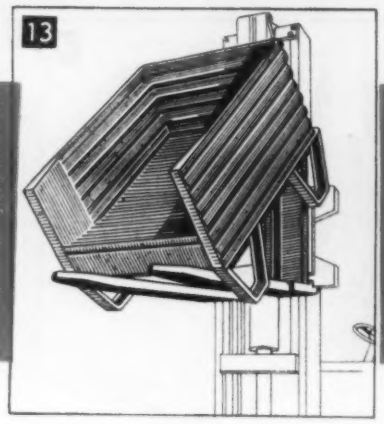
Rolls of paper, linoleum, cloth, steel rubber, roofing material and other rolled material can be picked up and revolved 90° for up-ending through use of an interchangeable roll-handling attachment, see **9**. Since the mast of the truck tilts back, the load is cradled when picked up horizontally and does not roll off the attachment. Fork trucks equipped with this device can stack rolls end-wise, or tier them in the horizontal position. For handling rolled materials and cylindrical containers where 360° rotation is desired, another roll handling device, **10**, can be put to use. One of the arms moves in and out hydraulically to clamp the load. The other arm can be adjusted manually to permit handling of loads having different diameters. The entire carriage rotates to pick up and stack rolled goods in the horizontal position. The device clamps by means of cylinders and rotates by means of a hydraulic motor.

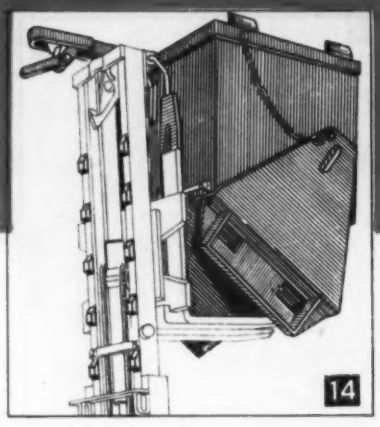
A multiple arm drum carrier, **11**, picks up and transports four drums without the use of pallets. The V-shaped sides of the device permit drums to be picked up without careful prepositioning. Gripping shoes equipped with non-slip linings hold the drums in place during transportation. Hydraulic action retracts the gripping shoes so that the load can be released when desired. Another hydraulically operated device for handling drums without the use of pallets, **12**, engages hooks around the upper lips of two drums and tilts them back on their edges so that the fork of the truck can get under them for lifting.

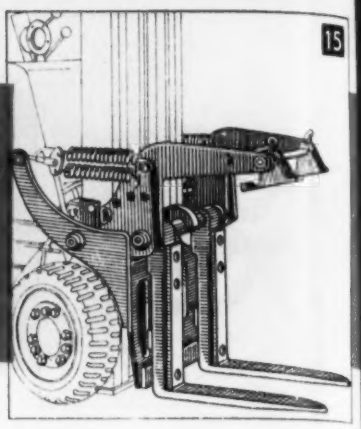












Fork Truck Attachments

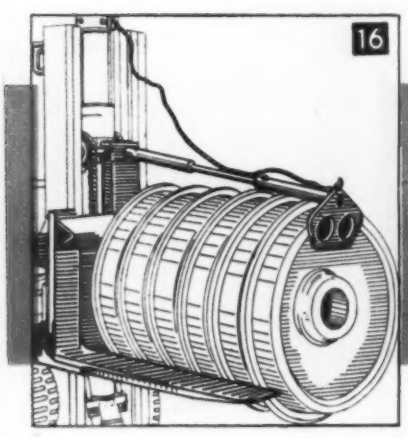
Continued

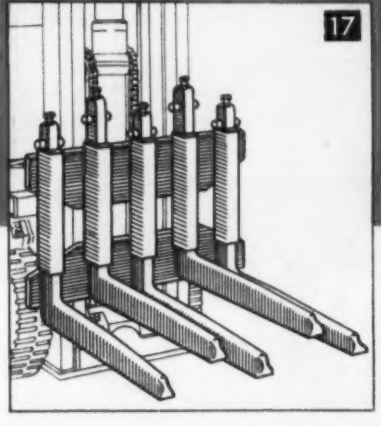
A dumping attachment that is purely mechanical and that does not require extra motive connections uses a hook secured to the mast of the truck for its dumping action, see **13.** This hook, when engaged, holds the back bottom edge of the bin in place so that when the hooks are lowered the front end of the bin drops downward spilling its load. The level of discharge is regulated by the mast elevation when dumping.

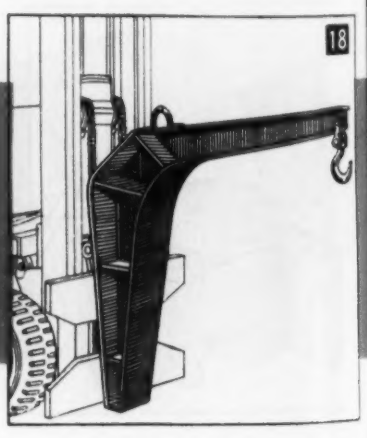
Another dumping attachment, **14,** is suspended from the mast by a hook from the top of the bin. When the forks lower, the bottom of the bin hinges downward to release the load. This bin is totally enclosed, carries a full load, and has the advantage of not being open on one end, a condition that limits capacity.

Tinplate and sheet material that might have a tendency to slide off during transport can be handled on the sheet handling fork-and-clamp attachment, shown in **15.** When a load is put on the forks, the forks float downward about 2 in. and pull the two iron hands down on top of the load, holding it firmly in place. The iron hands are adjustable to accommodate stacks of different heights.

Disk-shaped objects, such as railroad car wheels, can be handled by a hoe-like device, **16,** hinged to the mast of the truck. The device is engaged and disengaged by means of a wire attached to the hoe and looped over the top of the mast. A staggered fork attachment was designed specially for picking up concrete blocks, see **17.** Individual forks can be lifted manually a few inches for alignment with each of several blocks that make up the load. Once the load is picked up, the load is lifted with all forks at an even level. Heavy pieces of machinery and odd-shaped bulky items not easily handled on forks can be transported on the gooseneck interchangeable attachment, shown in **18.**







A Metallographic Technique

FOR CEMENTED CARBIDES

By W. H. BLEECKER

Chief Metallurgist,

Carbide Alloys Div.,

Allegheny Ludlum Steel Corp.,

Detroit

THE only practical abrasive for obtaining a metallographic polish on cemented carbides is diamond powder. The usual abrasives, alumina or magnesia, are of no value as they are softer than tungsten carbide, and such relatively hard abrasives as silicon carbide or boron carbide cut too slowly. With diamond powder, the polishing of cemented carbide is easier than the polishing of steel, principally because the extreme hardness of cemented carbide makes it nearly immune to accidental scratching.

The chief precaution is to prevent contamination between the different grades of diamond powder. As an aid to this, and as a help in conserving expensive diamond abrasive, the use of proprietary compounds consisting of carefully graded diamond particles in a paste vehicle is suggested. Several companies market these compounds in the form of a cartridge which fits into an instrument resembling a large hypodermic syringe. This provides an excellent abrasive dispenser.

The most satisfactory initial preparation is to grind the specimen with a 220 grit, resinoid-bonded diamond wheel on a surface grinder. This will insure a degree of flatness which will allow polishing over the entire area of the specimen. While good results can be obtained using a 220 grit, vitreous-bonded cup wheel on off hand grinding, the same degree of flatness is difficult to achieve, especially when the wheel becomes grooved or convex. At the high magnification necessary for examining the microstructure of cemented carbide, flatness is of utmost importance. It is also important that the flat area be large enough to insure that the specimen can be held normal to the optical axis of the microscope. This is most easily and accurately done when the entire specimen, rather than a small area, is polished flat.

The ground specimen is then taken directly to the first polishing lap, which is a disk of photographic paper cemented with the emulsion side down to a standard bronze lap. This is impregnated with 6-micron diamond particles in the following manner: A ribbon of diamond compound about ½ in. long is squeezed from the dispenser on to the center of the lap and kerosene is sprayed on the center area of the lap with a small atomizer. The diamond compound is then spread over the center 4 in. of the wheel as evenly as possible with the fingers. The lap is rotated at 500 or 600 rpm and the ground specimen is oscillated slowly from the center to the edge of the impregnated area with a firm pressure against the lap. Kerosene is dripped or

Ordinary polishing abrasives are too soft so that diamond powder must be used to prepare carbide specimens. Etching and polishing practice require great care. Because of high magnification extreme flatness is essential. A suggested nomenclature of carbide phases is advanced.

sprayed on the lap in sufficient quantity to prevent excessive drag on the specimen. Correct cutting action is immediately evidenced by blackening of the lap, when the grinding marks from a 220 grit wheel will be readily removed in 20 or 30 sec.

The specimen can now be dipped in solvent to remove the kerosene and then washed with soap solution. If the procedure has been correct, no further polish is necessary for routine examination. Some scratches will be evident at 1500X, but not too many. These can be completely removed by lapping with 1-micron diamond abrasive, using the same procedure as for the 6-micron abrasive.

Rapid lapping depends upon careful preparation. Proportionately more lapping is required if the ground finish is wavy because of a loose spindle or an improperly dressed wheel. Use of a liberal amount of coolant is recommended grinding practice.

FIG. 1—Grains pulled out in polishing appear as dark pits. Etched with $K_3Fe(CN)_6$. 1500X.

Examination of the polished specimen for porosity is usually done before etching, the higher reflectivity of the unetched specimen giving a sharp contrast to void areas. The usual procedure is to use a magnification of 50X in order to cover the greatest possible area. In distinction to other products of powder metallurgy —iron, copper and bronze, for instance—which are inherently porous, cemented carbide should be practically free of pores or voids. Grades containing appreciable titanium carbide will normally show a considerably higher porosity, probably because the oxides of titanium are not reduced under normal sintering conditions, and because titanium carbide, as commercially prepared, is associated with free carbon.

Porosity has not been quantitatively correlated with tool performance, but qualitatively it is a rough measure of the care used in manufacturing. An apparent porosity can be generated by improper polishing technique, and probably any polishing technique is responsible for some of the voids reported as porosity. Fig. 1 shows an etched specimen at 1500 diameters, where the shape of some of the voids indicates that carbide crystals have been pulled loose during polishing. Further polishing will result in enlargement of this void, and consequently render it indistinguishable from voids of other origin. This is the reason for careful grinding of the sample, so lapping may be held to a minimum.

The standard etchant for cemented carbides is Murikami's Reagent, or alkaline ferricyanide, consisting of equal volumes of 10 pct NaOH and 10 pct K_3 Fe (CN)$_6$. The polished specimen is carefully cleaned with soap, well rinsed, and submerged in the etchant which should be at 100° to 120°F. Bakelite is rapidly attacked by this solution, and specimens requiring mounting should be mounted in lucite. The time of etching is relatively long, up to 2 or 3 min, but extensive overetching results in a surface which cannot be properly focused at 1500X. Another etchant is alkaline potassium permanganate, which gives somewhat better contrast between phases, but is subject to staining and overetching.

Unmounted specimens may be heat tinted by holding them at 500° to 600°F for 10 min. Excellent results are obtained in this manner, which avoids electrolytic interaction between phases. Fig. 2 shows a tungsten and titanium grade so

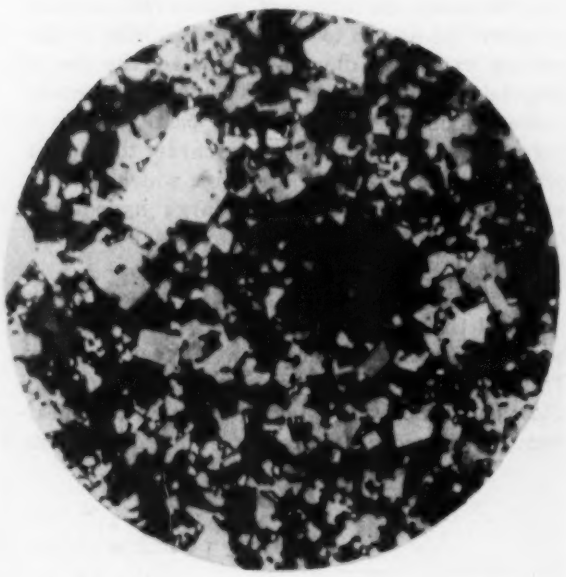


FIG. 2—A carbide containing TiC heat treated at 600°F. TiC formations appear yellowish brown under ordinary microscope illumination. The WC is practically unaffected. 1500X.

treated. The alkaline ferricyanide etch, however, is practically standard, and in general gives the results necessary for differentiating the several phases.

There is a need today for a suitable nomenclature for these different phases which are found in cemented carbides. The aura of secrecy which unfortunately has shrouded the manufacture of cemented carbide is beginning to be dispelled by customer demand, and any interchange in knowledge will necessarily require a terminology. Naturally, such a terminology is a matter for mutual agreement, but as there exists a good foundation, the result of several German investigators.[1]

PHASE NOMENCLATURE

Phase	Constitution	Recognition	Fig. No.
α	WC	α_1 Fine, irregular, gray	3
		α_2 Course, crystalline, gray	4
β	Co	Interstitial, white	All
γ	TiC WC	γ Irregular chains, dark gray	5
	TiC WC	γ_1 Accidental; globular, dark	6
		Synthetic; spheroidal, dark	...
TaC	TaC	Rounded crystals, light gray	8

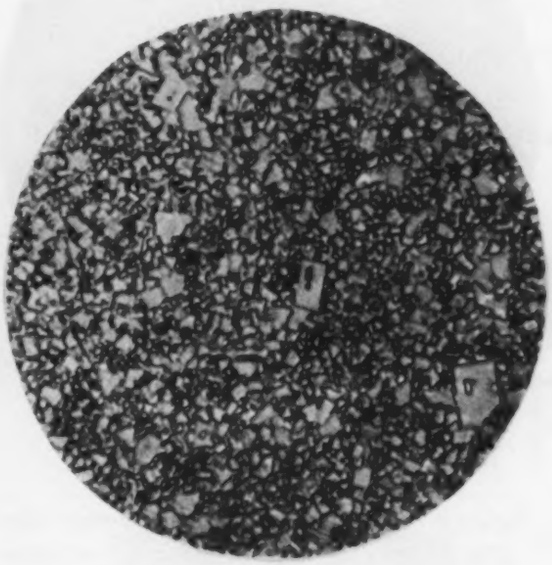


FIG. 3

FIG. 3—The α_1 phase of WC. FIG. 4—The α_2 phase, below. $K_3Fe(CN)_6$ etch on both. 1500X.

FIG. 4

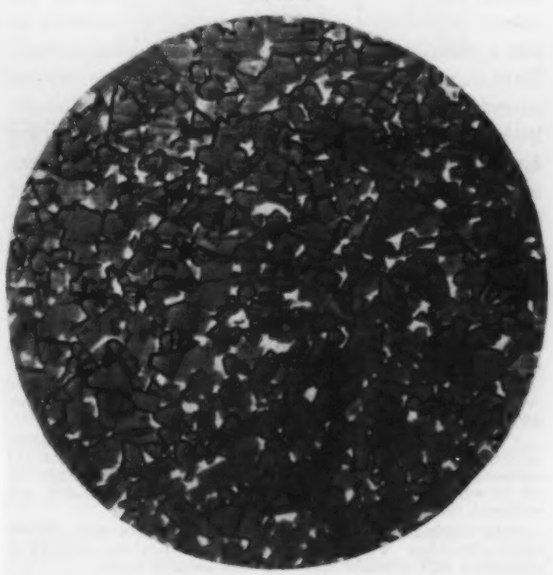


Fig. 3 shows a cemented carbide of tungsten carbide and 6 pct cobalt. Fig. 4 shows the same composition, but with an important distinction in the mode of the tungsten carbide phase. As the tungsten carbide phase is designated α, it, therefore consists of two subdivisions: (1) α_1 Relatively fine crystals of tungsten carbide which presumably are not recrystallized, during sintering; and (2) α_2 Larger crystals which have recrystallized, distinguished by the sharp, angular mode.

β, the cobalt phase, which may contain a limited amount of tungsten, carbon or tungsten carbide in solution.[2]

As both α_1 and α_2 are chemically identical,[3] they etch alike and are distinguishable only by shape and size. The β, or cobalt, phase is not attacked in normal etching and appears as white patches among the grains. These are the constituent phases of a cemented carbide containing only tungsten carbide and cobalt.

With the introduction of other carbides, the nomenclature could become unwieldy. Generally, however, titanium carbide is the chief ingredient added to the basic WC-cobalt material. This occurs in nodular masses which etch darker than the α phase, and is termed the γ phase. Usually it is possible to see that this is not an homogeneous phase, but consists of a partial diffusion of WC into the TiC crystal. The distribution tends toward long chains of the phase, but prolonged heating causes spheroidic globules to form, with

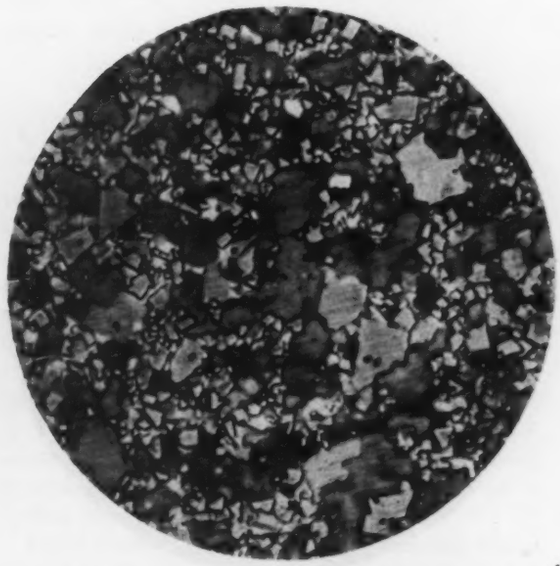


FIG. 5—γ phase of TiC, showing tendency toward chains of connected particles. Same etch. 1500X.

a more complete diffusion between TiC and WC. Tne more or less diffuse globular structure is termed the γ_1 phase in distinction to the normal γ phase, even though there is no definite point at which γ becomes γ_1. The reason is that a cemented carbide in which the TiC is predominently in the γ_1 phase will give poor performance in service.

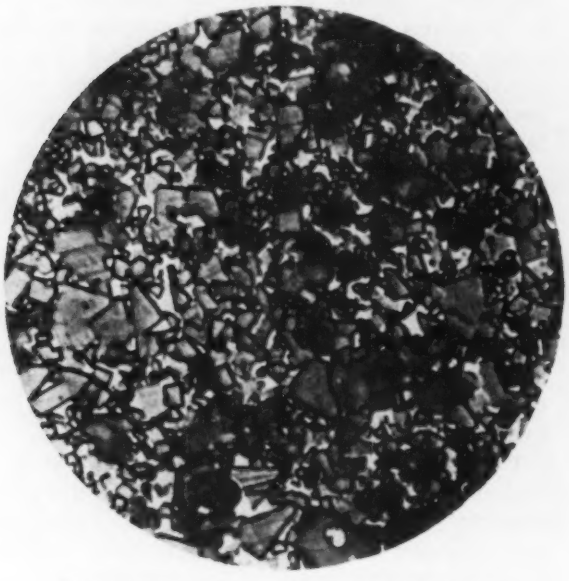


FIG. 6—The γ_1 phase shows chains broken up. Same etch. 1500X.

Fig. 5 illustrates the γ phase; Fig. 6 shows the undesirable γ_1 phase. This distinction between γ and γ_1 does not apply to double or multiple carbides which have been synthesized prior to sintering. These will invariably be globular and apparently homogeneous but do not cause degradation of the physical properties. Logically they would be considered γ_1 phase from a purely metallographic standpoint, although the difference is quite apparent. Fig. 7 shows a cemented carbide containing this type. Probably the presence of γ_1 phase should be considered a symptom of excessive heating in sintering rather than the real cause of the degraded physical properties.

For convenient reference the phase nomenclature is summarized in the accompanying table.

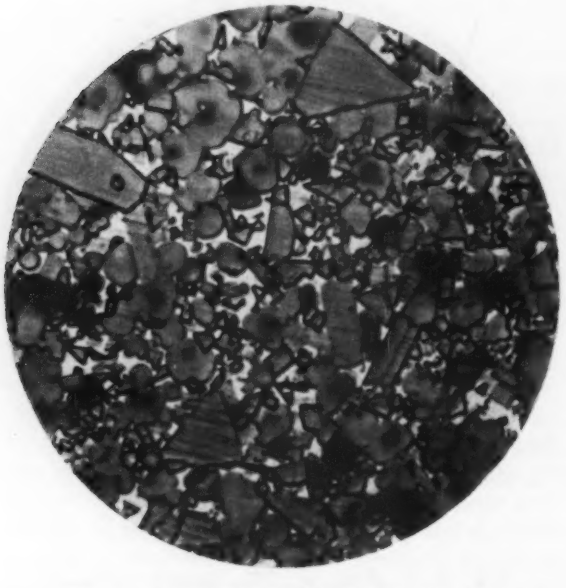


FIG. 7—A synthesized WC-TiC alloy showing γ distribution. Same etch. 1500X.

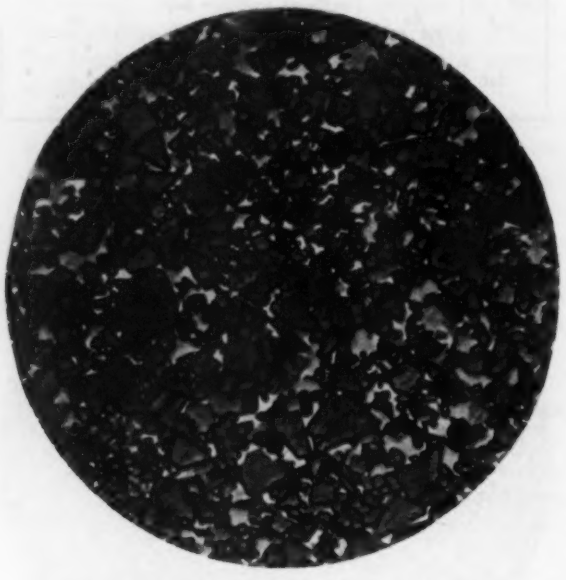


FIG. 8—TaC, resembling α_2 WC, but lighter in color. Same etch. 1500X.

Fig. 8 shows the mode of occurrence of tantalum carbide[4] in the absence of titanium carbide. In form it resembles the α_2 phase of tungsten carbide, but etches much lighter and the crystal contour is rounded rather than angular. There seems to be little tendency for interaction between tantalum carbide and tungsten carbide, as the crystals of each are distinct and individual. Tantalum carbide is used to restrict the crystal growth of WC during sintering and occasionally to replace titanium carbide as an anticratering agent. Its high cost restricts the latter use, however, and when it is present with TiC it is not usually distinguishable as a separate phase.

References

[1] W. Dawihl, Wartime Head of "Hard Metals Research" at Osram, Germany.

[2] Dawihl claims 10 pct WC in the solution at room temperature. C. Goetzel (Treatise on Powder Metallurgy) claims less than 1 pct. S. Takeda (Tohoku Imperial University) claims that the B phase is practically pure cobalt at room temperature.

[3] This is not certain. It is possible that the recrystallized α_2 phase contains a small amount of cobalt, which might cause the difference in appearance. This raises a question as to whether the α_1 phase is not also recrystallized, but without the solution of cobalt.

[4] No distinction is made between tantalum and columbium carbides. The ore from which tantalum carbide is prepared will contain more or less columbium.

Fishing Tackle

Britehoned and Plated

More than half the parts produced by Shakespeare require no buffing prior to plating after they undergo Roto-Finish preparation. Mechanized plating setup proves fast and efficient.

By HERBERT CHASE

TO attain maximum economy in finishing metal parts, most of which are plated, the Shakespeare Co., Kalamazoo, Mich., makers of reels and other fishing tackle, has long employed barrel technics to prepare parts for plating. Today, nearly all such parts undergo two Roto-Finish operations. Excellence in appearance is an essential, yet more than half of the total volume of parts requires no buffing before plating. Those that must be buffed need a minimum of buffing because their surfaces, in common with those of parts that need no buffing, are given a smooth lustrous surface by a process called Britehoning.

This process is performed wet using Roto-Finish equipment, chips and compounds. It involves two phases: polishing, or cutting-down, and honing, which produces luster. Both phases are conducted in the same barrel with the same chips, but with a different compound for each phase. The polishing removes toolmarks and surface irregularities to make the honing effective. The net result is marked economy in overall finishing cost because very little hand work is required. Where Britehoning alone is adequate, as for most of the work, the cost per piece generally ranges only 10 to 20 pct as much as if buffing alone were done.

Parts processed include chiefly brass and stainless steel, though some are nickel silver and aluminum. The latter parts are not plated. Those in the lower portion of above photo are typical

of the parts processed. They range from ¼ to 2½ in. diam, up to several ounces in weight. After surface preparation, many of the parts are barrel plated but most of the larger ones, if required in sufficient volume, are plated in a LaSalco Daw plating machine. Smaller lots, or those requiring other finishes than the usual nickel-chromium, are done in hand tanks unless barrel plating is adaptable.

For nearly all parts, the initial operation is cutting down or polishing to remove burrs, sharp edges and toolmarks. This work is done in closed rubberlined Roto-Finish barrels. Size of equipment used depends chiefly upon the quantity of parts per batch. The same barrels are employed for the subsequent honing.

For the larger barrels, a typical charge includes 75 lb of parts, 500 lb of No. 4 Britehoning chips, 10 lb of No. 10 or 5 lb of No. 100 compound and sufficient water to cover the charge. Barrels commonly run half full. These barrels turn at 20 rpm and the time per load ranges from 4 to 24 hr, depending upon the kind of material of which the parts are made, their initial condition, and the degree of smoothness required.

Time per load could be reduced using the Roto-Finish grinding process but in this plant only Britehoning is used because it can be done without emptying the barrel, separating parts from chips, and reloading. Thus at the end of the polishing, the barrel is stopped and flushed out with water to remove the refuse from the polishing operation, and No. 203 compound is added for honing. The barrel is run 2 to 3 hr to produce the final Britehoned finish.

When finished the load is dumped into a hoist pan, flushed off, and the compartment flushed out with water. Then the pan is shifted by overhead hoist to a Roto-Finish separator and is discharged onto a screen with mesh such that the chips fall through and the work pieces remain on the screen. In other cases, the parts fall through the screen and the chips remain on the screen. The hoist pan load of chips is carried by crane back to the barrel or to a storage bin.

Smaller barrels handle a smaller charge, but the proportions are the same. These barrels turn at 20 rpm and time is about the same as for larger barrels. Stainless steel and other nickel alloys, being harder and more resistant to abrasive action than brass, require from 2 to 3 times as long as brass if initial smoothness is about the same.

After screening, the parts are rinsed in soft water and are put through a centrifugal dryer unless wet coloring is specified. If the latter is required for further improvement in luster, the parts are transferred to the coloring barrels in which the average charge is 50 to 75 lb of work to 800 lb of ⅛ or 3/16 in. steel balls plus 2 lb of No. 355 Roto-Finish compound. Coloring commonly requires 20 min to 1 hr, using a barrel that turns at 20 rpm.

More than one-half the parts that are Britehoned, rinsed, and dried are ready for bright nickel and chromium plating, but a few parts for which a higher luster is needed, are wheel buffed by conventional methods. Less buffing time is needed because the Britehoning provides a smooth surface already having considerable luster. Some parts are finished explicitly for the removal of burrs and sharp edges. In this case the operation is an economical substitute for mechanical trimming and edging operations.

Barrel plating is confined to parts needing cadmium, nickel or copper deposits. All parts that require chromium plating, except a very few needing hard chrome for wear resistance, are processed through an automatic nickel-chromium plating machine.

The LaSalco Daw Junior machine is a comparatively new and simple unit that requires no plating racks and employs a continuously moving chain conveyer. This machine is completely automatic except for loading and unloading the parts. Each part is held by a pair of music wire steel springs fastened to a bronze holder.

The holder wires have outer ends that are hooked or otherwise simply formed to grip the piece to be plated. The inner end of each wire fits in a bronze casting which includes a pivot pin at its inner end. This pin fits a hole in a block carried by the chain. Holders are rocked about this pin when the part that each pair of wires carries is to be dipped into a solution or is lifted from the solution in passing from tank to tank. The wires are partly submerged and become plated themselves but are stripped of plating after each cycle in the machine and can

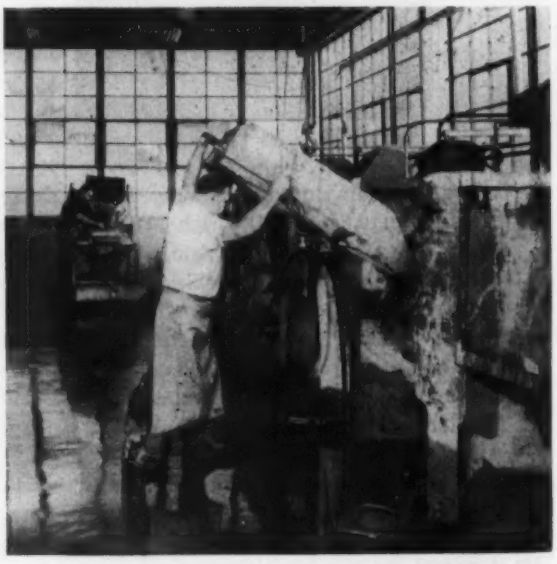


FIG. 2—The line of barrel finishing equipment used by Shakespeare to polish and hone reel parts prior to plating.

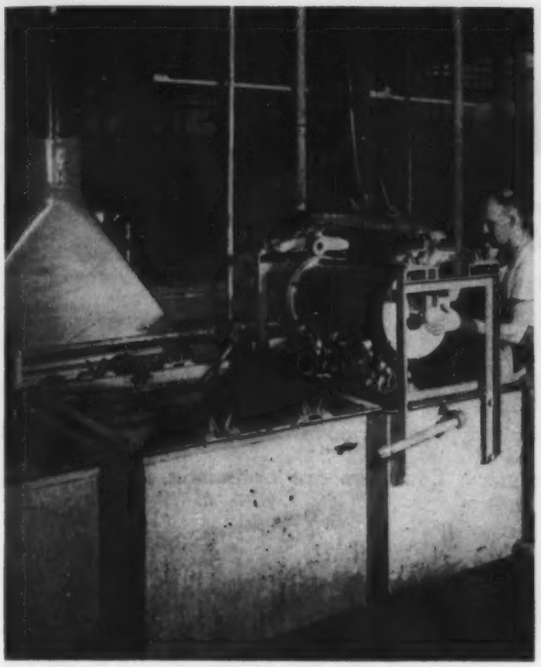


FIG. 3—Barrel plating, with barrels moved from tank to tank with an overhead crane, is used by Shakespeare for some of its parts. Most are plated on an automatic machine.

be discarded with only slight loss when no longer useful. Upkeep is less than for racks.

Two operators normally sit at the machine's loading station and spring each pair of wires together as they are passed through a hole or holes in the part. The speed of the conveyer, usually about 3000 carriers per hr, is adjustable and is set to suit the part in process. When a batch of parts is completed and the next lot needs wires whose ends are differently shaped, the conveyer is stopped long enough to change to a new set of carriers prepared in advance and quickly substituted.

After leaving the loading station, the parts enter a trichlorethylene three-stage (vapor-spray-vapor) degreaser and emerge in about 30 sec clean and warm. The trichlorethylene is constantly distilled to remove the grease and oil it washes from the parts.

Next, the parts are given a 30-sec soak in a 6-oz-per-gal solution of No. 24 Oakite kept at boiling temperature and constantly air agitated. Then comes a momentary spray rinse in cold soft water. This is followed by a reverse current electrocleaning for 15 sec at 10 to 25 amp per sq ft current density in an 8-oz-per-gal solution of NorthWest No. 48 cleaner, held at 180°F but not agitated. Spray rinsing follows before the hot alkali can tarnish the surfaces. A dip rinse comes directly after the spray.

Parts then enter a 3-sec etch in 10 pct sulfuric acid at room temperature, the work being the cathode. A cold rinse in running water is applied as parts leave the acid etch. They then enter a bright nickel plating tank in which the solution is held at 150°F. Current density up to 180 amp per sq ft is used. This solution has high metal and chloride concentration and very high boric acid concentration with Ph held at 3. The solution is continuously filtered and clarified electrolytically but is not agitated except as results from rapid continuous circulation.

After another rinse (in cold running water) the parts enter another 3-sec etch in 10 pct sulfuric acid at room temperature, followed by dip and spray rinses at room temperature before entering the chrome plating tank. This contains a standard solution (32 oz per gal of chromic and 0.32 oz per gal of sulfuric acid) which is continuuously circulated to avoid stratification and is held at 120°F. Current density is 200 amp per sq ft. Time in this tank is 45 sec at a carrier rate of 3000 per hr.

A dip rinse and a spray rinse, both cold, follow the plating. Then the parts are dip rinsed in demineralized water, heated to 180°F, to aid subsequent drying. This drying is also promoted by the compressed air blow off that follows and is completed by a 45 sec pass through an oven heated to 150°F by a steam-fed unit that forces

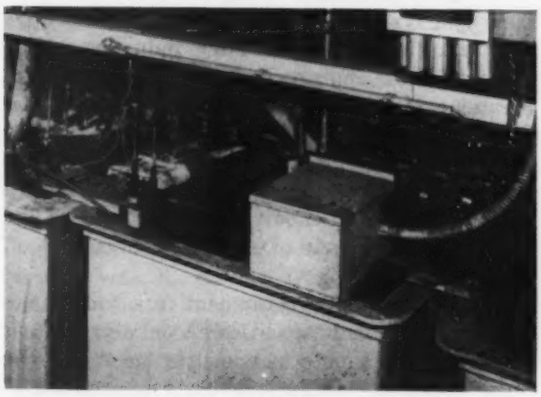


FIG. 4—This view of the automatic plating machine shows the parts held at the ends of the wire arms protruding from the conveyer, which automatically dip and raise as the conveyer moves above each tank.

circulation of heated air through the tunnel.

At the end of the latter there is an automatic unloader that pushes parts off the wire supports and onto transverse inspection conveyer belts where two operators inspect the parts. These operators and the two who do the loading represent the only direct labor required in normal operation of this plating setup.

If all of 462 carriers on the plating conveyer are kept loaded, with the conveyer moving at the usual speed, a total of 3000 pieces per hr can be plated and actual production approximates this rate while the setup is operating.

In general, a complete set of carriers can be changed in about 15 min. Coated wires have been tried but are of little if any advantage as they must be clean at contact points where most wear comes. Uncoated wires last 24 to 48 hr. They are cheaper than plating racks and can be discarded without significant loss.

FOUNDRY SHOW
FEATURES MECHANIZATION AND NEW PROCESSES

Foundry Show displays this year featured operating exhibits and actual pouring of metal. The technical program covered new technology in all phases of the castings industry. Founders are optimistic over business prospects for 1950.

NEW equipment and techniques displayed at the recent American Foundrymen's Society Foundry Congress and Show in Cleveland symbolized the widespread turn toward mechanization in the foundry industry. Management and engineering personnel were in greater evidence than in previous years, emphasizing current interest in research and indicating broader adaptation of new technology and developments. Exhibitors reported a considerable number of prospect inquiries at the displays, and a substantial amount of equipment was sold off the floor.

Materials handling equipment in a wide range of sizes, prices and capacities played a prominent role, sounding a note of encouragement for the small operator. Increasing costs of raw materials and labor and only a moderate amount of business have caused about 200 foundry failures, mostly among the marginal producers, since the war. Except for cases involving specialized work in the jobbing shops, foundries employing hand methods of operation have found it well nigh impossible to compete with the highly mechanized shops. The consensus expressed at the convention was that unless some action is taken soon, the industry may expect an additional 200 or more failures within the next few years.

However, it has been proven in a number of instances that the smaller shop can mechanize. Equipment manufacturers recognize a good potential for smaller, equally efficient materials handling devices, and displayed a variety of machinery adaptable to small scale operations.

On the brighter side, the founders reported a healthy upswing in business during the past few months. Gray iron producers anticipate production of about 10.5 million tons during 1950, about the same as last year. Part of the increases in this field are attributable to higher automotive production, but buying is generally well distributed.

The steel founders expect a good year, as evidenced by the fact that unfilled orders at the end of March were 185,611 tons. There has been a sharp upward trend in the carbon steel casting business, with alloy steel somewhat slower but rising. A large factor in the steel casting business is the heavy increase in railroad car manufacture, which should make this year's production comparable to 1947.

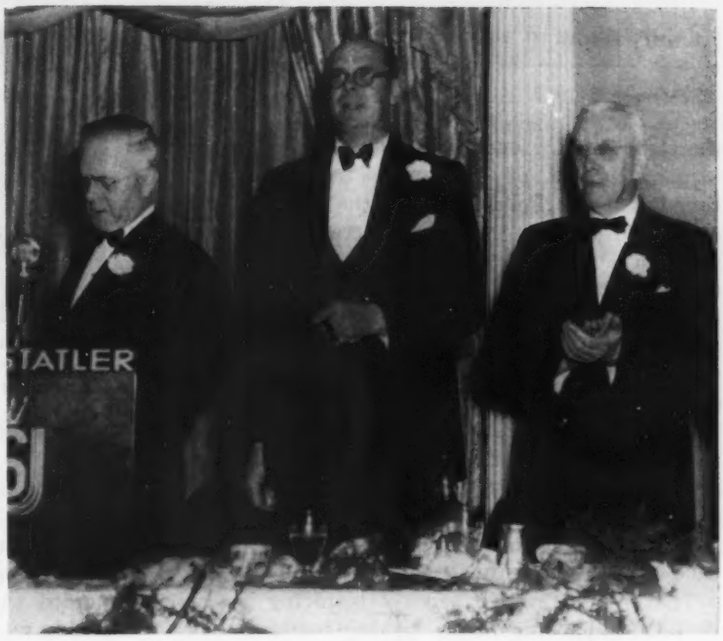
Highlighting the 5-day convention technical program was the Charles Edgar Hoyt lecture by W. W. Levi, Lynchburg Foundry Co., Lynchburg, Va., who spoke on "Operation of the Cupola." A complete coverage of current foundry technology was presented in a large number of papers and various technical sessions.

ECA Teams Visit Show

Two ECA productivity teams, one from Norway and the other from England, attended the various technical sessions seeking practical and technical information that might be applied to their operations. J. L. Sissener headed the 16-man group from Norway, while Frank Hudson led the British contingent. The teams are in this country to make extensive surveys of United States foundry production methods under the auspices of the ECA program.

England was also represented by the president of the Institute of British Foundrymen, N. P. Newman, managing director of Newman, Hender & Co., Ltd., Woodchester. This marks the first time in almost 30 years that a president of the IBF visited the AFS Congress during his term of office. Other countries represented at the convention included France, Sweden, Belgium, Switzerland, Cuba and Ireland. Attendance from Mexico and Canada was somewhat greater, since both these countries have AFS chapters.

Two official exchange papers were presented at the meeting. Frank Hudson, Mond Nickel Co., London, authored the official IBF exchange



E. W. Horlebein, left, is succeeded by W. L. Woody, right, as AFS president for the coming year. N. P. Newman, center, is president of the Institute of British Foundrymen.

paper entitled "Aluminum Alloy Castings—A Review of British Achievement"; Jean Maurice Laine, director, Advanced Foundry School, France, presented "Formation of Higher Technical Foundry Staffs in France," selected as official exchange paper of the Assn. Technique de Fonderie.

At the annual banquet, the Joseph S. Seaman gold medal was presented to C. H. Lorig, "for his many contributions to foundry metallurgy and for constant stimulation of research in the cast metals field." Dr. Lorig is assistant director, Battelle Memorial Institute, Columbus, Ohio.

Richard Schneidewind, professor of metallurgical engineering, University of Michigan, received the Wm. H. McFadden gold medal "for his valuable contributions to the malleable iron industry in connection with the graphitization of white cast iron and for his many contributions to the society and the metals casting industry."

In recognition of "his long-time contributions to the society and for his work in coordinating the casting processes with Naval requirements," C. L. Frear, senior materials engineer, Bureau of Ships, was given an honorary life membership in the AFS.

Another recipient of an honorary life membership was R. L. Lee, General Motors Corp., Detroit, whose citation read "for his philosophical approach to the problems of the foundry industry and for his stimulation of pride of craftsmanship among foundrymen."

L. E. Read, president, Foundation for Economic Education, Inc., Irvington-on-Hudson, N. Y., gave the banquet address on "Students of Liberty."

Exhibits were unusual and somewhat more spectacular at the 1950 Foundry Show than in previous years, several even featuring actual pouring of molten metal. One exhibit, over 200 ft long and representing a joint effort on the part of four cooperating companies, depicted a

AFS OFFICERS AND DIRECTORS

Heading the roster of 1950-51 national officers and directors of the AFS is president Walton L. Woody, vice-president, National Malleable & Steel Castings Co., Cleveland. He will succeed Edwin W. Horlebein, president, Gibson & Kirk Co., Baltimore, in July. Vice-president is Walter L. Seelbach, president and general manager, Superior Foundry, Inc., Cleveland.

Elected to serve 3-year terms as national directors are: J. J. McFayden, general mgr., Galt Malleable Iron Co., Galt, Ont., Canada; J. O. Ostergren, president, Lakey Foundry & Machine Co., Muskegon, Mich.; F. W. Shipley, foundry mgr., Caterpillar Tractor Co., Peoria, Ill.; J. Thompson, chief engineer, Continental Foundry & Machine Co., East Chicago, Ind., and E. C. Troy, foundry engineer, Palmyra, N. J. M. J. O'Brien, Jr., works mgr., Symington-Gould Corp., Depew, N. Y., was named to fill the unexpired term of the late A. M. Fulton, who died Feb. 15.

W. L. Seelbach, left, is newly-elected vice-president of AFS and W. W. Levi, right, delivered the annual Hoyt Lecture.

Continued

complete foundry operating sequence. The first stage consisted of equipment for reclaiming foundry sand. Following this, the sand entered a core blower, after which the green sand molds went to a vertical core oven for baking. The finished molds, after assembly, were conveyed to the pouring zone, where aluminum, melted in a crucible furnace, was poured. Finished castings were rough ground to remove fins, then passed out as souvenirs.

Recent developments in sand conditioning and handling equipment attracted considerable attention, as did some new automatic molding machines. Firms from overseas were included among the more than 225 exhibitors for the first time in about 14 years.

The unique Croning process, involving use of phenolic resin binders for making foundry sand molds and cores, received its first public demonstration at the show. The process, a development of Johannes Croning, Hamburg, Germany, was introduced in this country by Crown Casting Associates, Boston, who own and control the United States and Canadian patent applications. The demonstration, exhibited by Bakelite Div., Union Carbide & Carbon Corp., included actual production of molds and pouring of metal.

The process consists of first blending a homogeneous mixture of sand and phenolic resin.

The Joseph S. Seaman gold medal was presented to C. H. Lorig, left; Richard Schneidewind, right, received the Wm. H. McFadden gold medal.

This mixture is dumped over a hot cast iron pattern for a few seconds, then baked for a short period of time to cure the resin. The resulting mold, after stripping from the pattern, is a thin, fairly porous shell. Mold halves may be either clamped together or placed in a box and surrounded with steel shot or some other suitable bedding material.

Quality and precision are the chief advantages claimed for the new process. Other features are said to be that castings produced by this method require little or no finishing and tolerances of 0.002 to 0.003 in. per in. can be achieved as common practice. Savings of up to 90 pct in the amount of sand required may be realized, since the resulting molds or cores are thin shells. Molds made in this manner may be stored indefinitely, as they have no affinity for moisture and contain no volatile material.

CERAMISTS MAKE PROGRESS

On High Temperature Refractories

High temperature refractories took the spotlight at the largest ceramic convention in history. Metallic oxides or carbides are playing an important part in overcoming jet applications where metals alone have failed.

THE 52nd annual convention of the American Ceramic Society was held in New York City from April 23 to April 27. From Monday afternoon through Wednesday afternoon there were seven simultaneous division meetings in which nearly 150 papers were presented.

The largest of these groups is the refractories division whose program included papers on cermets, carbides, pure oxides, periclase refractories, processing and forming refractories, carbon disintegration tests for blast furnace brick, fundamental studies of refractory materials, and the testing of refractories. Abstracts of some of these papers are presented here. These papers will later be published in full by the American Ceramic Society.

New refractory compounds and results of latest research projects were reported to delegates which numbered over 2000. A new cermet was discussed in a paper by L. J. Cronin, of Raytheon Mfg. Co., Waltham, Mass. This combination ceramic and metallic material is made of 20 pct Mo and 80 pct ThO_2. Radioactive tracer studies are being employed in the studies of different types of cermets at high temperatures. V. D. Frechette and the Navy Project Staff at New York State College of Ceramics, Alfred, N. Y., reported on the use of Geiger counter

checks which determine the amount of diffusion of CO^{60}, Ni^{59} and Fe^{59} when these metals are plated on the surface of ceramic oxides.

Turbohearth Needs New Material

One of the major problems to the successful construction of turbo-hearth melting units is the lack of suitable refractories. This new type of steel melting furnace combines the principles of both openhearth and bessemer methods. (THE IRON AGE, Apr. 21, 1949, p. 63.) R. G. Wells and L. H. Van Vlack, Carnegie-Illinois Steel Corp., Chicago, reported on a periclase brick which has been tried in such furnaces. These side blown basic lined vessels offer many complex refractory problems.

While silica brick are comparatively inexpensive and readily available, they are not compatible with basic slags due to their acidic nature. End walls and even entire openhearth furnaces are being constructed of basic brick. In general, unfired chrome-magnesite or periclase bricks enclosed in metal cans are used.

The chemical and mineralogical alterations found in bricks after service in the top, front wall, and other locations of a turbo-hearth, were covered by these two authors.

Some Problems Outlined

In one brick, five zones, as indicated by color and chemical composition, were found in the first inch back from the hot face. In another, six zones were found in the second inch, then a crack usually occurred after these zones. The material beyond the crack was primarily unaltered brick. At the hot face, manganese oxide, aluminum oxide, and iron oxides were found in larger percentages than in the original brick. Lime and silica were found in lower amounts there than in the original bricks; however, they were found to have migrated back into the second major zone from the hot face.

Petrographic examination showed magnesoferrite precipitated from the periclase grains and di and tri calcium silicate surrounding the grains near the hot face. The manganese oxide and alumina are picked up from the slag by the periclase and are precipitated on cooling. About ½ in. back from the hot face, silica is found between all of the periclase grains, so that there is little contact of periclase grains. This leads to the formation of cracks which provide entry for the iron oxides, but decrease the migration of silica. The silica matrix also permits growth of the periclase crystals as it serves as a carrier for the MgO. The silica present is considered the primary cause of the grain growth and eventual failure of the refractories. The steel plates in which each brick is encased are not considered as a source of trouble except in supplying some of the iron oxide which enters the transverse cracks of the bricks.

James J. Gangler of NACA, Cleveland, delivered a paper on "Some Physical Properties of Eight Refractory Oxides and Carbides." It is now established that TiC is the most promising material for gas turbine applications.

Short time tensile strength at elevated temperatures, thermal expansion, density, and thermal shock resistance were determined for hot pressed specimens of beryllium oxide, magnesium oxide, stabilized zirconia, zircon, boron carbide, 85 pct silicon carbide—15 pct boron carbide, titanium carbide, and zirconium carbide. The interest in these materials is in possible gas turbine or other reaction motor applications; consequently the test temperatures and other conditions were selected with this in mind. For the tensile tests 1800°F and 2400°F were selected while 1800, 2000, 2200 and 2400°F were used for the thermal shock tests.

CARBIDES ARE BETTER

Material	Density gms/cc	Short Time Tens. Str., psi	Tens. Test Temp., °F	Thermal Shock Cycles	Thermal Shock Test, °F	Thermal Exp. x 10^{-6} per °F
BeO	2.96	6100	1800	3	2000	
MgO	3.39	3100	1800	½	1800	6.94 75–1000°F
TiC	4.74	17200	1800	21	2400	4.12 75–1100°F
		9400	2200			
ZrC	6.30	14450	1800	22	1800	3.74 75–1000°F
		15850	2200			
B_4C	2.50	25550	1800	½	1800	2.61 75–1100°F
SiC—85 pct	3.00	9950	1800	2	2200	2.34 75–1100°F
B_4C—15 pct		7100	2200			
$ZrO_2 \cdot SiO_2$	4.54	6200	1800	1	1800	2.24 75–1100°F
		3600	2200			
Stab. ZrO_2	5.80	6750	1800	0	1800	4.95 75–1100°F

In that test 2 in. diam by ¼ in. thick disks of the materials were heated for 10 min at these temperatures then cooled suddenly in an air blast for 5 min. The air for the cooling was supplied at 85°F at a rate of 250 fps past the flat sides of the specimens. The tensile test specimens were ground from bars to final dimensions of 4.5 in. long, a gage length of 1.25 in. and a gage diameter of 0.50 in.

Partial test results are given in the accompanying table. The tensile strength tests shows that boron carbide is the strongest of the materials tested at 1800°F while zirconium carbide is the strongest at 2200°F. In the thermal shock tests, the titanium carbide was the best. The testing procedure for thermal shock resistance is to shock the specimen 25 times at 1800°F, or as many times as is needed for failure, then for 25 times at 2000°F, then 25 times at 2200°F, then 25 times at 2400°F. Thus in the table, the titanium carbide has already withstood a total of 75 cycles (25 at each of the temperatures) and then withstood 21 more cycles at 2400°F.

Conveyers
SPEED GAS TANK ASSEMBLY

Conveyer systems at Oldsmobile's Lansing assembly plant were planned with aid of scale models of equipment. Gas tank assembly department is an example of how conveyers are laid out to deliver work to each operation at proper height and angle, eliminating unnecessary lifting or rotation of tanks by workers.

By W. G. PATTON
Detroit Editor,
The Iron Age

OLDSMOBILE process engineers have made extensive use of miniature layouts built to scale in planning the new assembly plant at Lansing. Also, during the planning stage, when finished parts were not available, full scale wood models were sometimes used to make a final check of the operations cycle. Studies of this kind made it possible to determine accurately in advance: (1) That the tools were located in the most comfortable position for the worker; (2) that any unnecessary rotation or lifting of the part was completely eliminated and (3) that the work was always delivered to the operator at the proper height and angle.

Processing of the gas tank is an excellent example of the results obtained from this careful planning and checking. There is no turning or rotation of the part by the operator during the entire process. The two halves of the gas tank move through the washing cycle standing on edge—which is most unusual. The upper and lower halves are brought together automatically, the two halves are spotwelded, the line resumes speed and delivers the assembly in an advantageous position for the seam welding operation. Induction soldering is used to attach the drain plug and flange and the filler assembly instead of the usual hand soldering method. Careful advance planning has enabled Olds to make allowance in its assembly operations for the fact that some gas tanks are shipped without the gasoline filler assembly. This member is attached if the tank is to be installed at Lansing.

Fig. 1 is a photograph of the three-dimensional layout of the gas tank assembly department. In the upper left hand corner gas tank upper bodies and braces are welded together and loaded on the three-stage washer conveyer along with the gas tank lower bodies.

After emerging from the washer the two bodies are brought together, tack welded and automatically discharged on a slide. The assembly is next seam welded on one of two machines and positioned in the drain flange induction soldering machine. The tank assemblies are automatically discharged and transferred to one of two conveyers. The transfer is accomplished by an electric selector mechanism which can be adjusted to any desired schedule. Oldsmobile-Lansing tanks travel on one belt conveyer to the filler assembly induction soldering operation and gage assembly. The tanks move from here automatically to water test tanks.

B.O.P. tanks (those for Buick, Oldsmobile and Pontiac plants) travel on an alternate belt directly to the water test tanks. Following the pressure test, the Oldsmobile-Lansing tanks are placed on a monorail conveyer which carries them to the final assembly line. Oldsmobile B.O.P. tanks are loaded on trucks which con-

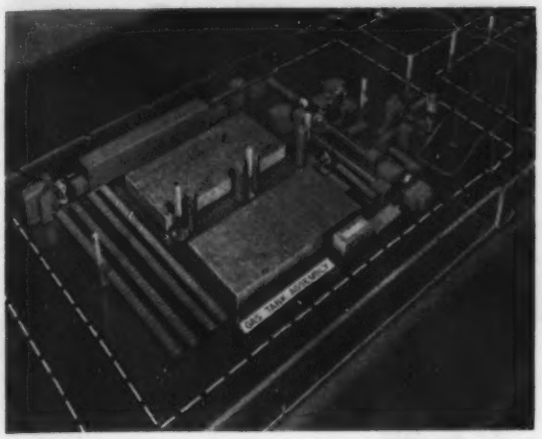


FIG. 1—Three-dimensional layout of Oldsmobile's Lansing gas tank assembly department. Models made from manufacturer's drawings were used to plan most efficient flow of material with a minimum of handling.

vey them to the shipping dock.

Fig. 2 shows the first operation on the fuel tank assembly. A Taylor-Winfield eleven gun multi-transformer knee-type welder is used for spotwelding two fuel tank assembly braces and for projection welding a gage flange to the fuel tank upper body. To provide better control of the operation, the welding guns fire in pairs. The upper and lower halves of the fuel tank are loaded for washing in sets with the inside faces 2 ft apart and in correct relationship to each

FIG. 2—Welding braces and a gage flange on a gas tank upper half. Upper tank bodies are delivered on pallets at operator's left. A pallet of lower bodies is in foreground. Load end of washer is seen at left.

other. After washing at 180°F in an emulsion cleaner and rinsing at 180°F the parts are dried in air heated to 200°F.

Fig. 3 shows tack welder set-up at end of conveyer. The washer conveyer discharges the parts on the tack welder conveyer whose operations are controlled by a limit switch. When the parts are properly located in the tack welder, a second limit switch stops the conveyer and actuates the spot-welder which welds the two halves together at four locations. After the welding cycle is completed, the first limit switch starts the tack welder conveyer which automatically discharges the tank at a 90° angle to its original direction of travel.

Tanks are welded alternately in the two cam actuated seam welders shown in Fig. 4 and placed in the Progressive-General Electric induction soldering machine where a drain plug and flange subassembly and a solder ring are positioned on the tank. Flux for the soldering operation is carried in the inside of the soldering ring. By pressing a button the operator starts the operating cycle which consists of

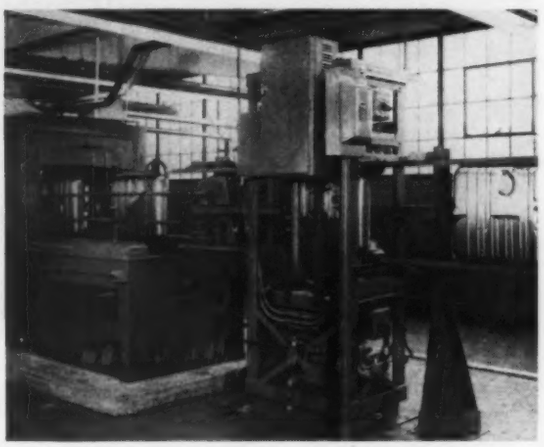


FIG. 3—Spotwelding tank halves together. Halves emerge from washer at left and are brought together by guide bars as they move onto the conveyer tack welder. Welded tanks move toward right and drop flat onto a roller skate conveyer.

(1) bending the outer flanges of the tank to accommodate the tank straps, (2) soldering the drain flange to the tank, and (3) discharging the tank from the rear of the machine. Fig. 5

FIG. 4—Seam welding and drain soldering machines. Tanks arrive from spotwelder on conveyer in foreground. Seam welding is done alternately on machines at left and right. Drain flanging and induction soldering is done on machine in background.

shows the coil of the induction soldering machine in position as well as the dies for bending the fuel tank outer flange.

Fuel tanks are automatically discharged onto a set of 8 rollers, Fig. 6. A selector mechanism predetermines the number of tanks which will move over the rollers onto a belt conveyer for

FIG. 5—Discharge end of drain welder, where tanks are separated by automatic selector. Tanks to have filler assembly attached are pushed onto conveyer in background by air cylinder at right. Tanks for branch plants proceed onto conveyer belt in left foreground.

installation of the filler assembly and the gage assembly. The remaining tanks are transferred to another belt conveyer for eventual shipment to B.O.P. plants without the filler and gage assembly. These parts will be installed later at the branch assembly plants.

Fig. 7 shows a tank in position in the filler assembly induction soldering machine. The operator positions the tank in the machine, places a solder ring around the filler assembly and locates the filler assembly in the tank. He presses a button to start the machine cycle which consists of the soldering operation and discharging the finished assembly from the machine. While the machine is cycling, the operator attaches the gage subassembly to the tank with five screws.

The final operation consists of testing the tank in water with air at 5 psi pressure. Following this, Lansing tanks are carried on a monorail conveyer to the assembly lines, while B.O.P. tanks are carried by truck to the shipping platforms.

The method described for fabricating fuel tanks has been successfully used at Oldsmobile for the past 4 months.

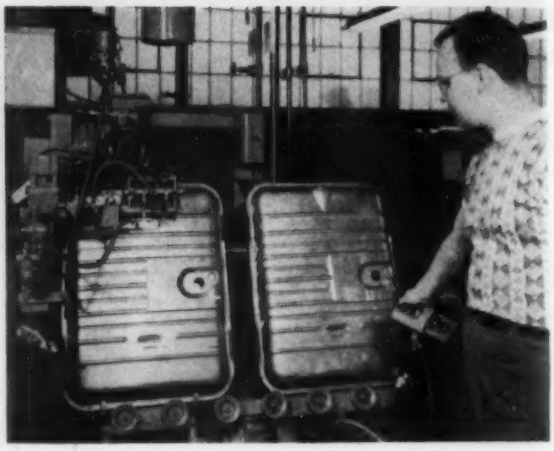


FIG. 6—Attaching gas tank filler assembly by induction soldering. Tanks from drain soldering machine are automatically suspended onto this conveyer and pushed into position by an air cylinder. Machine discharges automatically toward left at end of soldering cycle.

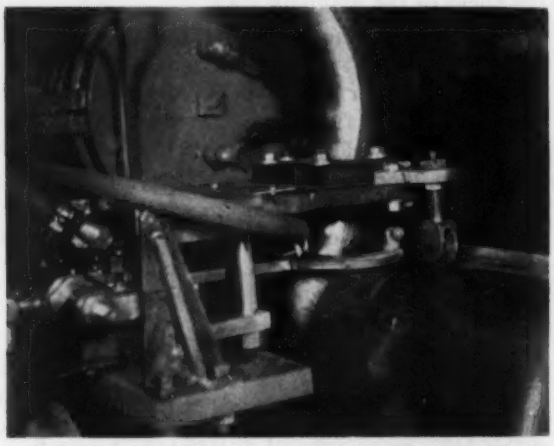
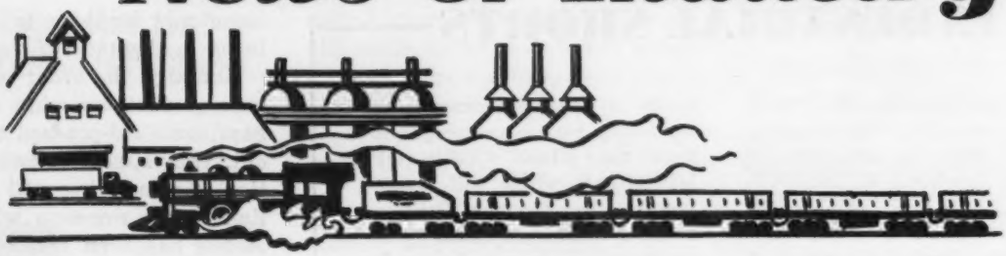


FIG. 7—Closeup of scissors-type induction heating coil for soldering filler pipe to Oldsmobile gas tank. Coil is shown in open position.

FIG. 8—Loading station for water tank test of gas tanks. Tanks without fillers arrive on conveyer at left, Lansing tanks at right. Test tanks are at right and left of operator. Monorail for delivery of tanks to Lansing assembly line is in background.

News of Industry



Speed Needed

Washington—Lagging efforts to straighten out the delivered price muddle may soon receive impetus from the President's Committee on Business and Government Relations. This group, composed of the Secretary of Commerce as chairman, the Attorney General, and the chairman of The Federal Trade Commission and the Council of Economic Advisers, is seeking ways of improving government-business relations and strengthening Federal policies to promote competition and prevent monopoly. It has received much advice from business leaders and is now preparing an interim report for the President. THE IRON AGE has learned that, despite some opposition, the committee feels that something must be done to clarify industry's right to absorb freight and will so report to the White House.

Packard Reports Loss

Detroit—A loss of $259,586 has been announced by Packard Motor Car Co. for the first quarter of 1950. Decreased sales volume, expense of getting into production of its new Ultramatic Drive transmission, and tooling contributed to the loss, Packard officials said.

Soss Opens 7th Line

Detroit—Completion of a seventh production line for automobile hinges, now in operation, has been announced by the Soss Mfg. Co. This puts production facilities at a new peak, said president Charles J. Soss.

What Happened to Legal Freight Absorption?

Congress, FTC, or Supreme Court could clarify . . . First action expected from Supreme Court . . . Delay killing legislative chances . . . FTC still stalls—*By GENE HARDY*

Washington—Optimism in the Nation's Capital 4 or 5 months ago regarding clarification of industry's right to absorb freight and sell on a delivered price basis by mid-year has been fading fast.

Congress, the Federal Trade Commission, and the Supreme Court have had ample opportunity to clarify either all or some phase of this problem. Now, it appears that the Supreme Court will be the only arm of government that is certain to act in the near future.

Before adjourning for the summer within the next 3 weeks, the Court will rule on the Standard Oil of Indiana Case which involves industry's right to justify price discriminations on the grounds that they are made in good faith to meet competition. But even if the Court overrules the FTC position, this is only one facet of the whole delivered price muddle.

Delay Killing Chances

On Capitol Hill the Senate has had before it for many months the House-approved conference report on S. 1008 which would legalize freight absorption and clip the wings of FTC in cases involving price discrimination. If the measure ever gets to the floor for a vote, it would probably pass by a slim margin. Each day of delay, however, gives its opponents time to garner more support and increases the chances that the bill will be lost in the last minute-rush.

If it is not passed before the close of the session, a new Congress will have to start from scratch next January since pending legislation does not remain alive between Congresses.

Immediate action is necessary if time-consuming measures such as social security expansion, appropriations bills, tax legislation and other so-called must measures are not to insure its demise in its present form.

FTC Still Stalls

FTC's position is still one of complete opposition to legislative attempts to end the confusion over the legality of delivered prices. The agency offers nothing in the way of constructive action, although it has had before it for many months an excellent opportunity to straighten out the mess it has created.

This came about in the steel industry's offer to accept a consent order to end the price-fixing charges directed against it almost 3 years ago. This order would assure that there would be no return of the basing point system, but would permit individual freight absorption to meet competition.

The Commissioners have continued to sit on this order and there are strong indications that it will be rejected. There seems to be not too much doubt over the Commission's power to accept such an order. The major point at

INDUSTRIAL SHORTS

SERVING AGAIN—William M. Goss, executive vice-president, Scovill Mfg. Co., has been re-elected president of the COPPER & BRASS RESEARCH ASSN. J. A. Doucett, vice-president, Revere Copper & Brass, Inc., and Sherman H. Perry, vice-president, Chase Brass & Copper Co., Inc., were re-elected vice-presidents.

HEAT TRANSMISSION—Post-war heat transfer development will be the theme of an international discussion by engineers to be held in London, Sept. 11 to 13. The AMERICAN SOCIETY OF MECHANICAL ENGINEERS, New York, is coordinating administrative details.

RESEARCH COUNCIL—The STEEL STRUCTURES PAINTING COUNCIL has been formed consisting of representatives of the associations and organizations concerned with the manufacture of, specification for, and use of paints and other coatings for the protection of steel surfaces.

NEW BOLT STANDARD—A new American Standard, High Strength, High Temperature Internal Wrenching Bolts, has been announced by the AMERICAN STANDARDS ASSN., New York. The bolts have a round head with a hexagonal recess, the head being larger than that of regular socket head screws.

SCRAP DEALERS—Max and Emanuel Kaufman have organized the GENERAL METAL CORP. at 460-468 Frelinghuysen Ave., Newark, N. J., to trade in all grades of nonferrous scrap metals.

DETROIT BRANCH—A branch sales office at 5736 Twelfth St. in Detroit has been established by the NATIONAL RADIATOR CO., Johnstown, Pa. Victor W. Blackney has been named branch manager.

3 IN 1—Three arcmachining companies have been merged to form the ELOX CORP. OF MICHIGAN which will manufacture the Electron Drill, a motor-driven, hard-metal drilling machine. John S. Larkin is president; H. V. Harding, vice-president in charge of engineering; Harold Stark, vice-president; and D. K. Simpson, secretary and treasurer.

OPENS AUTO PLANT—A new automobile manufacturing plant in Toronto was officially opened recently by NASH MOTORS OF CANADA, LTD. The Nash Canadian Statesman, first Nash car to be built in Canada, made its unofficial bow during the opening ceremonies.

BUILDING WAREHOUSE—A $1.5 million plant and warehouse will be built by the CHICAGO STEEL SERVICE CO., distributors of stainless steel. The warehouse will be erected at Kildare and 45th St. in the central manufacturing district of Chicago.

SCRAP FOR SALE—Bids will be accepted until May 31 on approximately 40 gross tons of heavy prepared steel scrap by the Salvage Officer at the ORDNANCE DEPOT in Lima, Ohio.

EXPORT SALES—The Portable Tools Div. of Cummins Business Machines, Inc., Chicago, manufacturers of saws, sander-saw, planer-saw, drills and polisher, has appointed JOHN C. JENSEN, INC., Chicago, to handle their export sales.

ADDS TO LINE—The assets and steel stocks of the Edgar T. Ward's Sons Co. warehouse in Newark, N. J., has been acquired by MAPES & SPROWL STEEL CO., Union, N. J. This will broaden their line to cold-finished steel bars, drill rod, and welded and seamless steel tubing.

issue now appears to be the alleged inadequacy of the order.

Actually, the order is so simply written that opposing staff members are hard-pressed to figure it out. They appear to be in the position in demanding a 25 mph speed limit from someone whose automobile has been taken away. The Commission and its staff have never been unwilling to express their views in all sorts of informal memoranda, speeches, statements, etc. But they refuse to express themselves in a formal order which would have the force of law. The outlook is for rejection of the present order although acceptance of a more detailed order is seen.

A. R. Mathieson Elected Head of Carnegie Pension Fund

Pittsburgh, Pa.—A. R. Mathieson was elected president and treasurer last week of the U. S. Steel and Carnegie Pension Fund, a Pennsylvania corporation administering U. S. Steel Corp.'s pension and insurance programs.

A. R. Mathieson

Others elected were: William C. Butler, comptroller and secretary; G. L. Thomas, supervisor of pension administration; and E. V. Russ, supervisor of insurance benefits administration and assistant secretary.

Previously elected directors of the Pennsylvania corporation are: D. F. Austin, R. M. Blough, W. A. Brown, W. C. Butler, G. L. Edwards, B. F. Fairless, M. D. Howell, T. F. Lynch, A. R. Mathieson, J. G. Munson, Irving S. Olds, G. W. Rooney, J. A. Stephens, R. C. Tyson and E. M. Voorhees.

Philco Declares Dividends

Philadelphia—Philco Corp. quarterly dividends of 50¢ per share on common stock and 93¾¢ per share on preferred stock 3¾ pct series A were declared.

Twentieth Annual IFMA Meet Elects Henry Heyn to Presidency

Hot Springs, Va.—Henry M. Heyn, sales manager of the Heat Treat Div. of the Surface Combustion Corp., was voted president of the Industrial Furnace Manufacturers Assn. at its twentieth annual meeting here recently.

Henry M. Heyn

Developments in alloys, refractories, and other technical data were discussed at the 2-day meeting. I. Austin Kelly, III, spoke on "Present Trends in Pension Plan Bargaining and Their Cost to Management."

W. E. Borbonus, IFMA past president, declared that small business has more to fear from the government than from big business, adding that genuine governmental interest in small business could well be directed to revision of restrictive tax laws.

A key speaker at the annual banquet was Clem D. Johnston, president of the American Warehousemen's Assn.

List Steel Stock Dividends

Pittsburgh—Allegheny Ludlum Steel Corp.'s board of directors declared the regular quarterly dividend of $1.125 per share on the $4.50 cumulative preferred stock, payable June 15 to holders of record June 1. Also voted was a common stock dividend of 50 cents per share payable June 30 to holders of record June 1.

Revolutionary Molds Displayed

Springfield, Mass. — Monsanto Chemical Co.'s Plastics Div. displayed a phenolic resin and sand casting technique at the recent Annual Foundry Show.

The process, developed in wartime Germany but never exploited, consists primarily of a carefully mixed layer of fine sand and phenolic resin cured over a hot metal pattern. The resulting thin shells are then placed in a box of steel shot for reinforcement and the metal is poured.

Quality Control Disregard Costly, Says Westinghouse Man

Pittsburgh — Emphasis on production volume without due regard to quality control is costing American manufacturers about $3 billion a year in product rejections by purchasers, said Joseph Manuele, director of the Westinghouse Electric Corp.'s Headquarters Quality Control Dept. at the recent American Standards Assn. Company Member Conference here.

He said that elimination of rejection costs would save American buyers every year more than they are spending for all electrical household appliances, including radio and television receivers.

New Rod Mill for Continental

Chicago—A continuous rod mill costing $5 million has been authorized by the Continental Steel Corp., Kokomo, Ind., to replace present wire making facilities. Although no contracts have been let on the mill as yet, the company expects to have it in operation in about a year. The new mill will enable Continental to diversify its production of wire products.

Weary of Erratic Business, Pullman-Standard Tries New Field

Chicago—To stave off the plummeting and soaring of railroad car building demand the Pullman-Standard Car Mfg. Co. has decided to entrench itself in the fabrication of stainless steel and aluminum sheets for the building construction industry. The work will be done at Pullman-Standard's Hammond, Ind., plant.

Already 700 tons of stainless steel fabricated products are being made for use in U. S. Steel's Mellon Building, under construction in Pittsburgh. Four by five ft, 20-gage, stainless steel panels for curtain wall construction are among the items ordered.

Negotiates with Alcoa

The firm is also negotiating with the Aluminum Corp. of America to turn Alcoa sheets into aluminum paneling for Alcoa's projected Pittsburgh office building.

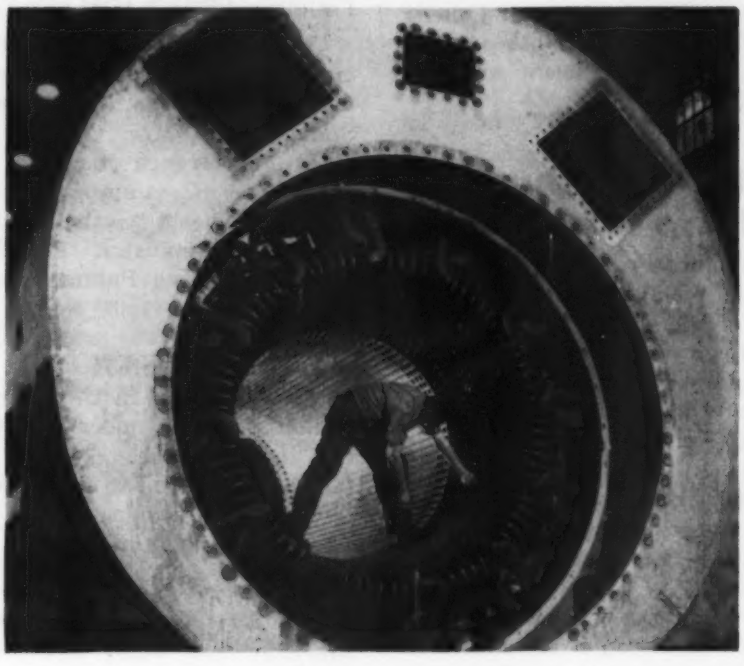
Pullman-Standard has confidence that demand for curtain wall construction using stainless and aluminum paneling for walls will gain favor over the conventional brick and limestone. They say that metal curtain walls reduce the dead weight of the building, knock down steel and concrete requirements, and drop maintenance costs. Rental space is increased by the 6 to 8-in. reduction of wall thickness.

To Tell of Trucking

New York—Three new departments for spreading facts about trucking were recently formed by Mack Trucks, Inc. According to E. D. Bransome, president, they will serve three interests, those of Mack Trucks, Inc., the trucking industry, and the general public.

U. S. to Get Manganese

Washington — Egyptian mining companies have made arrangements to export 100,000 tons of low-grade manganese ore to the United States during 1950. Manganese content of the ore is about 28 pct.



Thermalastic Takes a Bow

Pittsburgh—Thermalastic, Westinghouse's new electrical insulation, consisting of mica flakes in tough, heat-resistant synthetic resin, will endure at least ten times as long as previous insulations under conditions of severe electrical stress, claims the company. The 100,000-kw generator in the photograph is lined with Thermalastic insulation, designed primarily for high voltage generators.

Graham Lee Moses, manager of the Westinghouse Electric Development Insulation Section, told a meeting of the Great Lakes District, American Institute of Electrical Engineers recently that the new material makes possible the construction of larger electric generators. The synthetic resin of Thermalastic expands and contracts with generator coils and forms a tough, flexible barrier, expanding only one-fourth as much as asphalt-bonded insulation under heat. At 100° C it has 30 times the tensile strength of conventional insulations.

Mussen Heads Expanded Lab

San Antonio, Tex.—William A. Mussen, prominent in radio proximity fuse development, has been appointed supervisor of the newly expanded electronics laboratory at Southwest Research Institute. The expansion was necessary because of the Institute's increased work in electronics, stated Dr. Harold Vagtborg, president.

Gary Mill Runs at High Capacity

Chicago—What may be a monthly record for steel mill operation was set recently by the Gary works of Carnegie-Illinois Steel Corp. During April Gary operated at 107.4 pct of capacity and produced 503,670 tons of steel. The closest figure to this in recent years was in May, 1949, when the works operated at 105.3 pct.

War Plans of Davenport Alcoa Plant Leave Room for Expansion

Output can rise from 15 million lb of sheet, plate to 24 million lb.

Chicago—If the cold war should make the transition to active hostilities, the Davenport, Iowa, plant of the Aluminum Corp. of America can boost its present monthly output of 15 million lb of sheet and plate to 24 million lb in 4 to 6 months, stated N. B. Lane, assistant works manager, at a press conference recently.

Planned for Defense

Built with national defense expansion in mind, the Davenport plant has room for six more melting and holding furnaces to supplement the battery of ten already in use. Emergency installation would take from 2 to 3 months.

Of the reverberatory type, the furnaces can melt 1 million lb of metal every 24 hours. Provision has also been made for setting up another 144-in. 4-high hot mill in addition to the one now in operation. When demand presses a 96-in. strip mill and an aluminum foil mill will be constructed.

Complete Plate Mill

The Davenport works has a hot rolling 5-stand continuous sheet mill which converts stubby aluminum ingots into coiled strip to less than ⅛ in. thick. Further reduction is accomplished after annealing on 4 and 2-high cold mills. Also in operation is a complete plate mill.

Aluminum coils constitute 40 pct of plant output, expected to rise because of increased production of labor saving machines and the government's grain bin program, said R. B. McKee, vice-president in charge of sales offices.

Greater Use Expected

Mr. Lane said that small tonnage production of plate will climb with greater uses in transportation, aircraft industries, and Pullman car construction. The Davenport site was selected because of the availability of water

transportation, proximity to the Chicago industrial area, and to serve West Coast airplane plants, said Mr. McKee.

Plant buildings comprise 52 acres of the 495 acre tract. Their 295,000 sq ft of aluminum cellular panelling walls consist of two sheets of aluminum filled with glass fibre insulation. Forty-four acres of aluminum roof decking, 16-gage aluminum channels formed into ribs and coated, were also used.

Conversion Deals Boom Electric Furnace Rate

Production climbs to more than 90 pct capacity . . . More stimulus seen as demand continues . . . Alloy production also up . . . Alloy steel easier than carbon—*By JOHN DELANEY.*

Pittsburgh — Electric furnace production this year has been taking lofty upward spirals to present operation levels of more than 90 pct of capacity. Its prime benefactor is the lusty conversion market fostered by intense demand for steel.

The situation can be likened to that of last year when strong steel demand was a bedfellow with the conversion market need for electric furnace output. One difference exists. By this time last year, the bottom had caved in under steel demand. Its conversion market byproduct fell down the same hole. Today the conversion market gives signals that it will gain even more momentum.

Trend Continues Up

Electric furnace production is listed for the first quarter of 1950 by the American Iron & Steel Institute as 1,261,000 tons, or 11.6 pct less than the same period last year. In 1950, the trend continues up while productioin in 1949 was snapped in April and continued relatively low until December.

Despite the depressing effect of the February coal strike, electric furnace operating rate in the first quarter of '50 was 76 pct. In March it had moved to 81.1 pct, and to 86.1 pct in April.

In the first quarter of '49, the rate stood at an exemplary 95.4 pct of capacity, but quickly declined in April to 72.7 pct. Continuing its downward journey, the 1949 annual rate was a mere 60 pct. The rate in 1948 was 92.2 pct.

While conversion deals are not the only factor behind the pickup in electric furnace production, they are the most important. Although electric furnace alloy production is growing, average monthly production in the first quarter accounted for only 45 pct of total electric furnace ingot production.

The increase in electric furnace alloy demand began in February, has now reached the point where orders are being booked 6 to 8 weeks ahead. Four months ago producers had almost forgotten what it was like to have a backlog.

Some of the electric furnace ingots are going into the production of rimming steel and other high quality electric furnace carbon steels. Moreover, despite firm efforts of producers to weed them out, some consumers who normally would use carbon steel are specifying alloy steel because it is relatively easier to obtain.

The mills do not care for this type of business because once overall demand eases, these consumers quickly return to carbon steel. Meanwhile a good long-term alloy customer might be hurt in the scramble.

Up Since November

As shown in the accompanying table, the percentage of semi-finished steel for conversion, as related to total ingot production, has gone upward since last November. The percentage is still low in comparison with the first quarter of 1949, but is increasing.

While electric furnace alloy steel accounted for 72 pct of total electric furnace production from 1936 to 1942 (including some war orders), the percentage has been declining. In 1946 it fell to 62 pct; in 1947 to 47 pct; in 1948 to 41 pct; in 1949 to 40 pct and in

Trends in Electric Furnace Steel Production

Net Tons—000 Omitted Source—American Iron & Steel Institute. Compilation—The Iron Age

	Electric Furnace Ingot Output	Openhearth Ingot Output	Total* Ingot Output	Percent Electric Furnace to Total	Shipments Semi-finished† Steel for Further Conversion	Percent of SF Steel for Conversion to Total Ingot Output
1949						
January	479	7,273	7,752	6.2	295	3.8
February	460	6,619	7,079	6.5	260	3.7
March	476	7,459	7,935	6.0	282	3.6
April	357	7,001	7,358	4.8	216	3.0
May	295	6,877	7,172	4.1	180	2.5
June	186	5,943	6,129	3.0	146	2.4
July	162	5,298	5,460	3.0	96	1.8
August	247	6,091	6,338	3.9	123	1.9
September	238	5,981	6,219	3.8	155	2.5
October	106	808	914	11.5	16	1.7
November	231	3,798	4,029	5.7	82	2.0
December	381	6,940	7,301	5.0	168	2.3
Total—1949	3,598	70,088	73,686	5.3	2,021	2.6
1950						
January	410	7,119	7,529	5.4	182	2.4
February	387	6,130	6,517	5.9	157	2.4
March	464	6,734	7,198	6.4	191	2.7
April	487	7,301	8,196	5.9	.....	.....

* Does not include bessemer steel output. † Includes all semifinished steel.

the first quarter of 1950, it was 45 pct. The percentage in the booming first quarter of 1949 was only 37.

Average monthly electric furnace alloy ingot production in 1948 and 1949, and the first quarter of 1950, as compared with the average monthly total electric furnace ingot production in the same periods, follows:

	1950 (1st q.)	1949	1948
E.F. alloy ingot production (monthly average)	190,421	125,393	167,759
Total E.F. ingot production (monthly average)	420,147	299,740	408,111

Average total monthly production in the first quarter of 1949 was 472,000 tons.

Scrap Quality Discussed At Chicago Chapter Meeting

Chicago—Several proposals for improving the methods of scrap preparation were discussed at a special meeting of the Chicago Chapter of the Institute of Scrap Iron & Steel held Wednesday, May 17 at the Congress Hotel. Also under discussion was a recommendation to be made to the national board of directors relating to fair trade practices.

A resolution favoring the shipment of scrap iron as per specification and the condemnation of any shipper of contaminated material was made by Ernest Krulewitch, vice-president of the chapter and seconded by Judd Post of the Lincoln Iron & Metal Co., Milwaukee.

William Pohn of the Pohn Iron & Steel Co. presided at the meeting.

First Commercial Application Of Magnetic Fluid Clutch Staged

Washington—The first commercial application of the magnetic fluid clutch developed by the Bureau of Standards was demonstrated here last week.

Utilizing a mixture of fluid and powdered iron, the clutch transmits torque by making the mixture viscous with the application of a magnetic fluid. In the demonstrated application, developed for the Navy by Vickers, Inc., the clutch is used as a coupling between an induction motor and a generator.

Generator speed is maintained at constant value through variance of the clutch slip by regulating magnetizing current. Other applications of the clutch will be outlined in a Vickers bulletin to be issued in June.

Automotive Hunger for Steel Increasing

Steel demand for new cars, trucks seen reaching an all-time high . . . Need for flat rolled steel intense . . . Conversion visit extended for 6 months—*By WALTER PATTON.*

Detroit—The automotive industry has set a course during the next few months which will eclipse by a wide margin all previous output records. Steel demands for new cars and for some types of new trucks will be at an all-time high. Steel requirements for service parts is expected to remain on its present high plateau.

Tight Demand to Continue

In the opinion of some steel buyers here the stage is being set for the return of 10¢ steel but as yet the daisy chain operator and the curbstone broker have done little more than make a brief appearance and a hasty exit from steel buyers' offices. The possibility that carbon bar conversion may be added to sheet steel conversion is being considered here.

Meanwhile the peak auto demand for flat rolled products will be pyramided on top of record steel needs for auto parts and for appliances and other home equipment. With the placing of the largest freight car order in the past 25 years last week the railroad demand for flat rolled steel will be revived, local experts agree. When all of these demands are added up, the present tightness in steel is bound to be continued and even to become critical, it is argued.

During the past week, at least two auto plants were known to be on the ragged edge for steel but last minute deliveries saved the day on both occasions. Auto producers who long ago placed their lists of parts shortages aside have found these lists becoming active again. The present situation is not acute but it could become much worse in a comparatively short time, the trade believes. As yet these shortages lists are confined to parts rather than raw materials.

Overstays Visit

With conversion facilities tied up tightly through the third quarter there have already been reports here of fourth quarter conversion deals. There has also been a request, it is reported, for conversion space during the first quarter of next year although no commitments have been accepted. In brief, the conversion steel market that was originally scheduled to end in March 1950 and surely by the end of June 1950 has been extended for at least another 6 months—perhaps longer.

The basis for predicting a very tight steel situation through the

"Aha, Benton! So, I've finally found your hiding place."

end of 1950 is the whopping production now scheduled in auto plants. While this situation could change rapidly, such changes are usually made as a result of cars piling up or economic collapse.

Two Arguments Possible

At the moment no one sees a possibility that either of these eventualities will occur in the near future. While some sources have charged that there has been a dangerous rise in auto financing, it can be argued just as logically that after allowance is made for an increase in the price of cars and a large gain in personal income, the relative amount of car financing is still less than before.

During the past few weeks auto production has been ranging from 165,000 to 170,000 despite minor irritations arising from the railroad strike. This is at an annual rate of more than 8.5 million vehicles. Although official figures are not available it is expected that, within their ability to obtain steel, all of the major producers and most of the independents are planning production increases through August.

The auto production record so far this year is impressive. With Chrysler struck for 100 to 120 days, the industry has been averaging 130,000 units per week. Chrysler which hit a record pace of 30,000 its first week back in operation is apparently heading for a goal of more than 8000 vehicles per day. During recent weeks General Motors has been assembling more than 70,000 and some sources feel a top of 80,000 vehicles per week will be reached within a month or two. Ford is also edging up its schedules. With few exceptions the independent producers also hope to boost their production.

Engineers Meet Planned

Boston—The sixteenth annual convention of the National Society of Professional Engineers will be held at the Hotel Statler here on June 8 to 10 for the first time. Expected are more than 1000 members of the Society's 22,000, representing 37 states.

Speakers will include Maj. Gen. Lewis A. Pick, chief of the Army Engineers Corps, and Dr. Warren K. Lewis, M.I.T. professor emeritus of chemical engineering. Convention host is the Massachusetts Society. William F. Ryan, vice-president of Stone and Webster Engineering Corp., is vice-president of the national organization, while Edgar A. Harty, General Electric Co., Lynn, Mass., is president of the local branch.

B & O Furthers Dieselization

Baltimore—Orders for 34 new 1500-hp diesel-electric locomotives to complete dieselization of through freight service on its Buffalo Div. have been placed by the Baltimore and Ohio Railroad.

When the 34 units are delivered in 1951, B & O freight service will be dieselized from Benwood, W. Va., all the way through to Buffalo and Rochester, N. Y., via Pittsburgh, Riker, Pa. and Salamanca, N. Y.

Mexican Copper Mine Expands

Washington—About 200 tons of additional copper processing capacity in the Agua Prieta district, Mexico, will go into production in June, according to diplomatic reports. New leaching equipment at the Montezuma Copper Co.'s mines will have been installed by then.

"Miss Hensly, it is my sad duty to inform you that we must let you go. Accidents have increased 75 pct since we hired you."

Magnesium Corp. to Step Out; Alcoa Will Make Product

Pittsburgh — American Magnesium Corp., magnesium fabricating subsidiary of Alumium Co. of America, will go out of existence June 1 at which time Alcoa will assume all manufacturing activities of the company.

AMC operations at Cleveland and Buffalo will be continued there under Alcoa management. Other magnesium fabricating activities of Alcoa will continue as before.

The change will not affect sales activities, which have been part of Alcoa's sales department. Effective June 1, however, Alcoa will invoice directly all shipments of magnesium products.

Galvanizers Issue Annual Award

Toronto—Tadeusz Sendzimir, inventor of the Sendzimir process of continuous galvanizing, recently received the first annual award of the Galvanizers Committee of the American Zinc Institute. The bronze plaque was awarded for his achievements in galvanizing.

Mr. Sendzimir is vice-president of the Armzen Co. which was formed in conjuction with Armco Steel to further his inventions.

The committee plans to make this award each year in recognition of distinguished service and valuable contributions to the industry.

Sabre to Get Sperry Indicator

Great Neck, N. Y.—In the first military order for the device, North American Aviation, Inc., has contracted for Zero Reader all-weather flight instruments from the Sperry Gyroscope Co. They are to be installed in North American's F-95A, Sabre, fighters.

Plans Scale Plant

Chicago—A $5 million scale plant on 40 acres at Turner, Kan., near the outskirts of Kansas City, is planned by the Fairbanks, Morse & Co., which purchased the land from the Sante Fe Railway.

Viewing the News from

The ECONOMIC SIDE

By JOSEPH STAGG LAWRENCE

A Cold War Tactic?

THE *New York Times* of May 15, 1950, carried, in the form of a paid "ad," a story on gold by Sylvia Porter. The story calls attention to the sharp drop in the price of gold in the free markets in the world and suggests that this drop is due to substantial offerings of Russian gold.

At this point, the story becomes dramatic. The dumping of Russian gold is a grand tactic in the cold war between the East and the West. The Soviet objective: "To bewilder and terrify the industrialists of Europe and Africa who completely distrust paper money, to have faith only in gold as a measure of value and their own fortunes. When the world gold price crashes, their confidence is bitterly shaken, their willingness to invest in and continue business activities is deeply undermined."

What is the reason for the drop in the price of gold? Are the Russians raiding the gold markets with a view to undermining Western confidence?

Outside the area embraced by nations which are members of the International Monetary Fund there is only a limited capacity to absorb free gold. The conferees at Bretton Woods agreed to bar free markets in gold, to deny their citizens the right to possess it, to maintain the price of gold at a fixed level of $35 an oz. They agreed to limit ownership and transfer to central banks and governments. For all practical purposes, this demonetized gold throughout the greater part of the world.

The markets in the Far East have been closed by the advance of the Communists. The remaining free markets, Paris, Tangiers, Beyrouth, Macao, are markets of limited stature. The dumping of several hundred millions of gold could have a striking effect on price.

The hypothesis that Russia is deliberately dumping to drive down the price of gold hardly stands up. It means that Russia is undermining the market for her principal export from which she derives the major part of the foreign currencies with which she pays her spies, saboteurs and propagandists.

There is a distinct limit to the price decline which she can induce by heavy offerings of gold. The U. S. Treasury stands ready to buy all gold at $35 an oz. During 1947 and 1948 it bought in the aggregate $3692 million of gold which is probably more than the total gold produced by the Soviet during the last 20 years.

Actually if the drive on the price of gold is deliberate, Russia is doing a great favor to John Snyder, the Secretary of the Treasury, Sir Stafford Cripps and Camille Gutt, the head of the International Monetary Fund. The fund is an international O.P.A. with a schedule of artificial currency ratios and a rigid price for gold. The substantial premium on gold in free markets has been a source of constant embarrassment to the finance ministers of the Western World. The Russians are obligingly cutting down this premium.

A much more likely explanation of Russian gold dumping is that Acheson is proposing an economic boycott on Russia at the London conference, and she is hurrying to accumulate foreign currency reserves before the door is closed to her. Without such currency, her cold war would be seriously hampered.

British Steel to Shoulder Higher Rates of Shipping Alone

Railroads give up . . . Raise rates . . . Steel fills the breach.

London — British steelmen are wearing refurbished haloes with justified aplomb. They recently chipped another crack in the masonry of the Labor government's foundation by declaring that they will alone bear the multi-million dollar burden imposed on their products by costlier rail shipping. The rises came on May 15 after the Transport Commission cried uncle and passed the buck of nationalized railroad losses (THE IRON AGE, May 11, p. 92).

Grin and Bear It

Steel consumers have recovered from the shock they received when the steel industry said that it could not hold the dike against the increases which would strike them at roughly $1.40 per ton of steel—or from $14 to $17 million per year.

At painful expense the British steel industry has dealt another blow at the disciples of nationalization. The increase of 16 pct in shipping charges was the inevitable result of the railroads' loss of $1,400,000 a week. Steelmen proved that they were able to operate their own business without a loss and still have strength enough to nurse the ailing nationalized railroads.

Another Laborite Defeated

In the House of Commons, the Minister of Fuel and Power has wailed that the higher shipping charges will force a rise in the delivered price of state-mined coal, an admission that his agency could not cope with the increases. As one of the largest users of rails and coal and coke, the steel industry had right on its side if it had decided to pass the buck.

Steelmakers are certain that they can balance the savings of higher output, reduced production costs, and savings in the import program against the rail boosts. The industry is now urging that

controlled distribution of supplies, a wartime measure, be abolished because they feel the steel shortage has largely been overcome.

Car Builders Hunt Steel To Fill Pennsylvania R.R. Car Order

Builders bid in stiff steel market . . . Delayed delivery expected.

Pittsburgh — The Pennsylvania Railroad 10,000-car order made under the leasing plan of the Equitable Life Assurance Society came like an avalanche to send freight car builders scurrying for steel in a highly competitive market.

Companies which received orders for the 5000 Pennsylvania box cars, requiring 15,000 tons of sheets alone, are seriously hunting steel while firms destined to build the 5000 gondolas are scouting around for plates.

Walter S. Franklin, president of the Pennsylvania Railroad, said that original plans called for delivery late this year, but that difficulties of the builders in obtaining materials may defer delivery into the first quarter of 1951.

To Cost $50 Million

Pennsylvania's is the largest single order placed with outside builders since 1924. Orders placed earlier this year by the railroads usually were split up among outside builders and railroad shops. Of the 32,857 cars on order as of May 1, 15,189 were with the car builders and 17,668 in railroad shops.

Franklin said the building program would cost his firm $50 million over 15 years.

The order was distributed as follows: Pullman-Standard, Butler, Pa., 3000 70-ton gondola cars; Bethlehem Steel Co., Johnstown, Pa., 2000 70-ton gondola cars; General American Transportation Corp., East Chicago, Ind., 1000 50-ton box cars; American Car & Foundry Co., Berwick, Pa., 1500 50-ton box cars; Greenville Steel Car Co., Greenville, Pa., 500 50-ton box cars, and Pressed Steel Car Co., Mount Vernon, Ohio, 2000 50-ton box cars.

Ore Terminal

Birmingham — Repercussions from U. S. Steel's discovery of the iron ore bonanza in Venezuela have caused the purchase of a 36-acre Mobile River Tract by the Tennessee Coal, Iron & Railroad Co. to handle the ore flow when it comes. Presently occupied by the Turner Terminal Co. on a lease basis, the tract will be developed and improved, reports Robert Gregg, TCI president. He adds that planning remains in the tentative state and hinges on developments in the Venezuelan ore shipping situation.

Rochester Institute Tests Characteristics of Cutting Oils

Rochester, N. Y. — Cutting oil characteristics of coolants used in the metalworking industries are being determined by an evaluation testing program of the Rochester Institute of Technology through its automatic screw machine laboratory, the Institute says.

The results of a 4-month test to evaluate six cutting oils, determining the results of the application with various materials, tools and machine operations, has been completed by RIT for the Tide Water Associated Oil Co., recently. Four of the six oils are in the company's new line.

The study entailed actual production work on automatics with eight metals, including aluminum, four different grades of steel, two grades of stainless steel, and a bearing bronze. A report on the testing may be obtained from William G. Conrad, Tide Water Associated Oil Co., 17 Battery Pl., New York, N. Y.

Burroughs Shows New Products

Cleveland—Three new products of the Burroughs Adding Machine Co. were shown at the 1950 Office Machinery and Equipment Exposition, held here this week. In addition to these, the company has introduced 20 improved product models in the past year and a half.

Pittsburgh Joins J & L To Put Across Plant Expansion

Peaceful settlement gained by mutual effort to acquire land tract.

Pittsburgh — Mayor David L. Lawrence's upturning of the first clod of earth on May 18 for Jones & Laughlin's new open hearth plant on the south side of town concluded satisfactorily a difficult chapter in community-industrial relations.

Land Needed

No tempers were aroused and no heads were butted as the city of Pittsburgh and J & L undertook land acquisition for plant expansion that would benefit both company and community.

The steel company was cramped and about 2½ years ago decided to modernize its open hearth facilities and abandon unsound operation of four small stationary furnaces. The land that was needed was owned by 213 owners and tenants, many of them J & L employees.

J & L restrained its eagerness to get underway in recognition of the problem of obtaining comparable quarters for tenants elsewhere. Pittsburgh's Urban Redevelopment Authority took a hand with its power of condemnation to make possible completion of the project so that J & L would be in the best possible position to compete with others. By ensuring that, Pittsburgh provided for the continued employment of thousands of its citizens.

To Open in 1952

The new open hearth shop will consist of six 250-ton stationary furnaces having an annual capacity of 1 million tons. It is expected that some of the furnaces will be in operation in the fall of 1951, with full operation scheduled for early 1952. J & L prudently acquired enough property to permit installation of five more similar furnaces in the future.

Swindell Dressler Corp. is the general contractor for the project. Morrison-Knudsen was awarded the foundation contract.

Steel Plate Demand—When It Rains, It Pours

Shortage comes at time of hot steel demand . . . Producers swamped by orders . . . Light plates most desired . . . Big firms buying greatest factor in market—*By JOHN ANTHONY*

Philadelphia — Steel plate demand is snowing producers under. Snow flurries are thickest in the light gages for which demand is most intense. Delivery time on light plates, 3/16 to 3/8 in., is running at 16 weeks and higher and backlogs on heavy plates are only 5 to 6 weeks.

Big Boys Buying

The shortage of plate during heavy steel demand is a symptom of the unstable plate market, which is supported by dormant domestic shipbuilding and railroad carbuilding. The latter suffered severely until recently because orders were few.

Because of the character of the plate market, its instability and slump periods, no new plate mills are being built and many have been torn out during the past few years or diverted to other production. The current hustle and bustle of the plate market does not extend to the smaller fabricators and tank makers who report no unusual activity.

Demand originates from the larger manufacturers who have confidence in future operations and are replenishing working inventories. Plate demand is also getting stimulus from the Equitable Life Assurance Society's railroad car leasing plan.

Plate mill production was injured in the poor steel market of 1949 when continuous strip mills were used for plate rolling—a practice discontinued some months ago when sheet business piled up. Bethlehem's Lackawanna mill has suspended plate production.

J & L Bows Out

Republic's 98-in. continuous hot strip mill at Cleveland will enter sheet production at the end of August, taking plate tonnage out of the market for the time being. Republic is not going out of the plate business in Cleveland but is not accepting further plate orders at this time because of heavy sheet and strip commitments.

J & L still rolls plate up to 3/4 in. but scant tonnages of this product are being ordered by the general market with the bulk going into J & L warehouses. The firm willingly withdrew from the plate making scene several years ago when it dismantled its 150-in. Otis Works Plate Mill.

Republic's Gadsden, Ala., plate production was taken over for its pipe mill about a year ago. Worth Steel Co. is about to double its pipe mill capacity, thereby taking plate tonnage out of the market.

Order Books Unbalanced

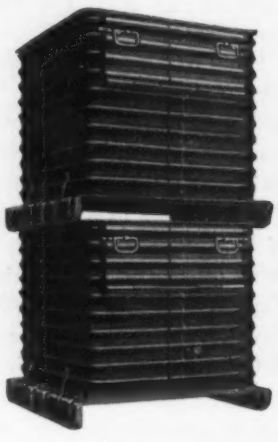
Central Iron & Steel Co. is expected to install a pipe mill. The Granite City continuous mill went into production of sheet bar for tinplate about 2 years ago and never resumed plate production.

The present high rate of demand for light plates has put plate mills on the spot so far as their labor relations are concerned. Their order books are badly unbalanced between light and heavy plates.

Plate mill workers are paid on a tonnage basis. There is a good deal of dissatisfaction and the possibility of an outright walkout by the men if the mill schedule calls for too heavy a load of light gage production. This would affect the weekly take-home pay.

ANOTHER TIME-SAVING COST-CUTTING ALL-STEEL MATERIALS HANDLING BOX DESIGNED and BUILT BY POWELL

Materials handling jobs require individual attention. **Powell** specializes in special as well as standardized equipment. The pictured Hinged End Door Box Platform was recently delivered to a customer who wanted a stacking box that was easy to work out of even when stacked. The box had to be easy to get to with fork lift trucks yet—to facilitate tiering — have a minimum fork space. **Powell** met every requirement satisfactorily.



POWELL
PRESSED STEEL

Since 1920

Powell designs and builds all kinds of materials handling containers *from any metal.* If you are not certain you are handling your product economically—call in **Powell**—*originator of cold formed steel materials handling equipment.* Bulletin 700 indicates **Powell** versatility in creating special equipment. Write for it.

DEPT. 45

POWELL PRESSED STEEL CO.
HUBBARD, OHIO (IN GREATER YOUNGSTOWN)

Welding Assn. Elects New Officers at Convention

Chicago—At their recent sixth annual convention, the National Welding Supply Assn. elected officers for the coming year. The new president is Glenn G. Garman of Purity Cylinder Gases, Inc., Grand Rapids.

Elected vice-presidents were R. S. McCracken, Jr., William F. Johnson, William A. Rice, Walter G. Lofgren, Charles O. Stilwell, and G. Milton Sims.

The new board of directors consists of Homer W. Cessna, J. Gordon Duff, R. P. Tarbell, R. P. Mahoney, and Elmer Bakke. These men hold office until 1953 with the exception of Mr. Bakke who fills an unexpired term until 1952.

Want Functional Design

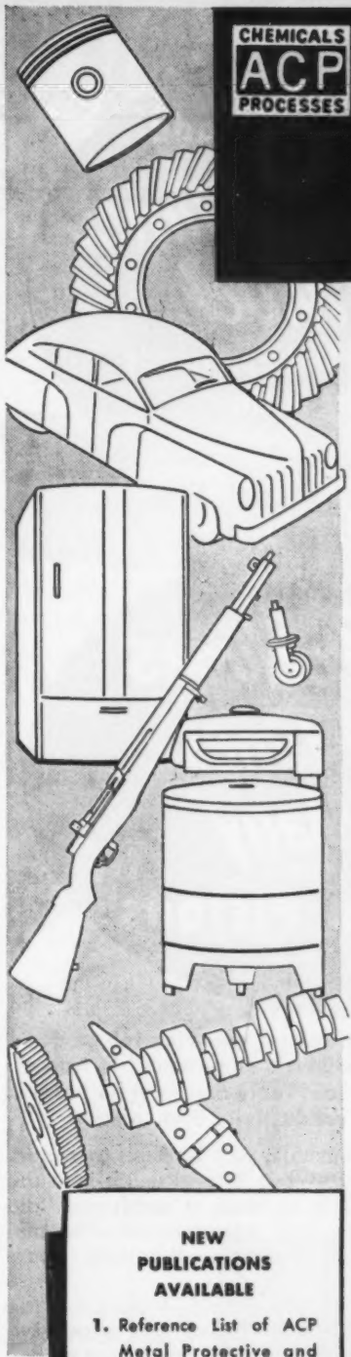
Toledo—About 18 pct of the 3404 station wagons exported in 1949 by the Willys-Overland Export Corp. were of the 4-wheel drive type. According to Marcel F. DeMuller, president, this bears out his prediction that overseas consumers will consider utility and functional design of prime importance in cars and particularly in station wagons.

GM Buys Back Union Building

Detroit — UAW-CIO headquarters building at Cass and Milwaukee Sts. has been sold back to its original owner, General Motors. The union will move this fall into a new building now being erected on the former Edsel Ford estate, on E. Jefferson Ave., at Van Dyke. GM first sold the building to the union in 1921.

Purchases Scrap Facilities

Youngstown, Ohio—Purchase of scrap handling and processing facilities here has been announced by Berkowitz & Co., Inc. The property covers about 5 acres on which an 8000-sq ft floor warehouse is located. The yard is equipped with modern scrap handling and processing equipment.



CHEMICALS ACP PROCESSES

PHOSPHATE FINISHES TO MAKE YOUR PRODUCT DURABLE

PAINT BONDING

"Granodine" forms a zinc-iron phosphate-coating bond on sheet metal products — automobile bodies and fenders, refrigerator cabinets, etc. — for a durable, lustrous finish.

"Lithoform" makes paint stick to galvanized iron and other zinc and cadmium surfaces.

"Alodine", the new ACP protective coating chemical for aluminum, anchors the paint finish and protects the metal.

RUST PROOFING

"Permadine", a zinc phosphate coating chemical, forms on steel an oil-adsorptive coating which bonds rust-inhibiting oils such as "Granoleum."

"Thermoil-Granodine", a manganese-iron phosphate coating chemical, forms on steel a dense crystalline coating which, when oiled or painted, inhibits corrosion.

PROTECTION FOR FRICTION SURFACES

The oiled ***"Thermoil-Granodine"*** coating on pistons, piston rings, cranks, camshafts and other rubbing parts, allows safe break-in operation, eliminates metal-to-metal contact, maintains lubrication and reduces the danger of scuffing, scoring, galling, welding and tearing.

IMPROVED DRAWING AND EXTRUSION

"Granodraw" forms on pickled surfaces a tightly-bound adherent, zinc-iron phosphate coating which facilitates the cold mechanical deformation of steel, improves drawing, and lengthens die life.

Write or call for more information on these products, and advice on your own metal-working problem.

NEW PUBLICATIONS AVAILABLE

1. Reference List of ACP Metal Protective and Paint-Bonding Chemicals.
2. ACP Phosphate Coating Chemical Selection Chart.
3. ACP Phosphate Coating Chemical Descriptive Folder.

Pioneering Research and Development Since 1914

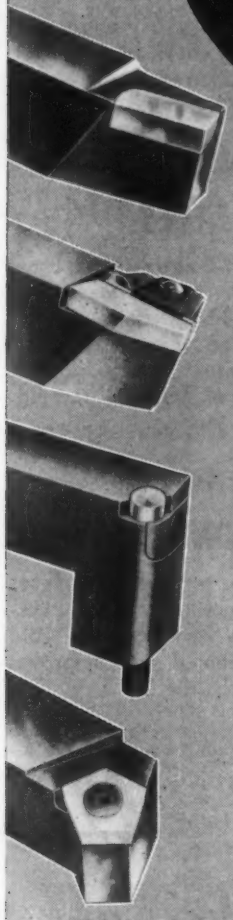
AMERICAN CHEMICAL PAINT COMPANY

AMBLER, PA.

Manufacturers of Metallurgical, Agricultural and Pharmaceutical Chemicals

TRUE... This Kennametal Blade Costs 2.3 Times As Much as carbide-tipped blades previously used by an engine builder

BUT... It Produces 17.4 Times as Many Cast Iron Pistons



You may never have a grooving job to do—but the engine builder's experience* is true of every machining job. Tools must not be judged by first cost—it's productivity that counts.

A good tool can usually pay for itself by reducing actual tool costs—but its real value is in the quality and quantity of work it produces—the amount it reduces tool maintenance—the machine downtime it prevents—the man hours it saves.

Kennametal cemented carbide tools are made by processes that are exclusive and expensive but which are worth far more than they cost—because they assure a consistently sound, dependable, superior tool material. *It's our business to provide tooling that increases productivity—not necessarily tools to meet a price.*

These efforts pay off—in the shops of thousands of users of Kennametal tools—resulting in reductions of thousands of dollars in production costs. Tell us your machining operation—we'll show you how Kennametal is doing it, or a similar job, at a saving. Better yet, we'll demonstrate Kennametal and let you decide.

* Details of this job on request.

KENNAMETAL Inc.
LATROBE, PA., U.S.A.
MANUFACTURERS OF SUPERIOR CEMENTED CARBIDES AND CUTTING TOOLS THAT INCREASE PRODUCTIVITY

News of Industry

STEEL CONSTRUCTION NEWS

Fabricated steel awards this week included the following:

573 **Tons,** Burlington and Lexington, Mass., limited access highway, bituminous concrete surfacing and five bridges through Peter Salvucci, Waltham, Mass., and Berke Moore, Inc., Boston, Mass., to West End Iron Works, Cambridge, Mass.

500 **Tons,** Bloomington, Tex., plant for E. I. duPont de Nemours Co., to Consolidated Western Steel Co., Los Angeles.

490 **Tons,** Chattanooga, Tenn., addition to nylon plant, E. I. duPont de Nemours Co., to Virginia Bridge Co., Roanoke, Va.

475 **Tons,** Bucks County, Pa., Pennsylvania Dept. of Highways LR 156(6), to Bethlehem Steel Co., Bethlehem.

265 **Tons,** Apt. House, Forest Hills, N. Y., to Grand Iron Works, Inc.

155 **Tons,** Delaware County, Pa., Pennsylvania Dept. of Highways LR 23031, to Bethlehem Steel Co., Bethlehem.

100 **Tons,** Philadelphia, Wingohocking St. bridge, City of Philadelphia, to American Bridge Co., Pittsburgh.

Fabricated steel inquiries this week included the following:

3489 **Tons,** Providence, Olneyville Sq., construction of portion of Olneyville Expressway. Charles A. Maguire and Associates, Providence, consultants. Completion date Oct. 31, 1951.

3350 **Tons,** Raritan-Woodbridge Counties, N. J., New Jersey Turnpike Authority, Contract 34, due June 6.

1600 **Tons,** Mercer-Middlesex Counties, N. J., New Jersey Turnpike Authority, Contract 29, due June 1.

1482 **Tons,** Burlington-Mercer Counties, N. J., New Jersey Turnpike Authority, Contract 36, due June 8.

670 **Tons,** Scranton, Pa., stadium for Scranton School Board, due June 1.

600 **Tons,** Reading, Pa., bridge for Reading Co., due May 25.

600 **Tons,** Trenton, N. J., Navy Bureau of Yards and Docks, Washington, altitude exhauster wing for turbine laboratory, due June 7.

447 **Tons,** Salem - Gloucester Counties, N. J., New Jersey Turnpike Authority, Contract 24, due June 8.

400 **Tons,** Wilmington, Del., Delaware Memorial Bridge Contract 7, due June 15.

300 **Tons,** Trenton, N. J., Perry St. ramp, New Jersey Dept. of Highways, due May 25.

141 **Tons,** Newark, N. J., New Jersey Dept. of Highways LR 25(34k), due June 8.

120 **Tons,** Baltimore, Maryland State Roads Commission, due June 6.

118 **Tons,** Passaic County, N. J., Hepburn overpass, New Jersey Dept. of Highways, LR S3(3), due June 8.

Reinforcing bar awards this week included the following:

2100 **Tons,** Chicago, Veterans Administration Research Hospital, to U. S. Steel Supply Co., Chicago.

574 **Tons,** Burlington and Lexington, Mass., limited access highway, bituminous concrete surfacing and five bridges, through Peter Salvucci, Waltham, Mass., and Berke Moore, Inc., Boston, Mass., to Bethlehem Steel Co., Bethlehem.

440 **Tons,** Milwaukee, Royal Plaza Apts., to Bethlehem Steel Corp.

205 **Tons,** Westmoreland and Allegheny County, Pa., Pennsylvania Turnpike

KNOW ABOUT *NEW* "FLEETWELD 72" for high speed production welding?

• **Welds Faster.** Operates efficiently over a wider current range than conventional E-6012 electrodes. Operates best at currents substantially above conventional E-6012 rods . . . and without overheating.

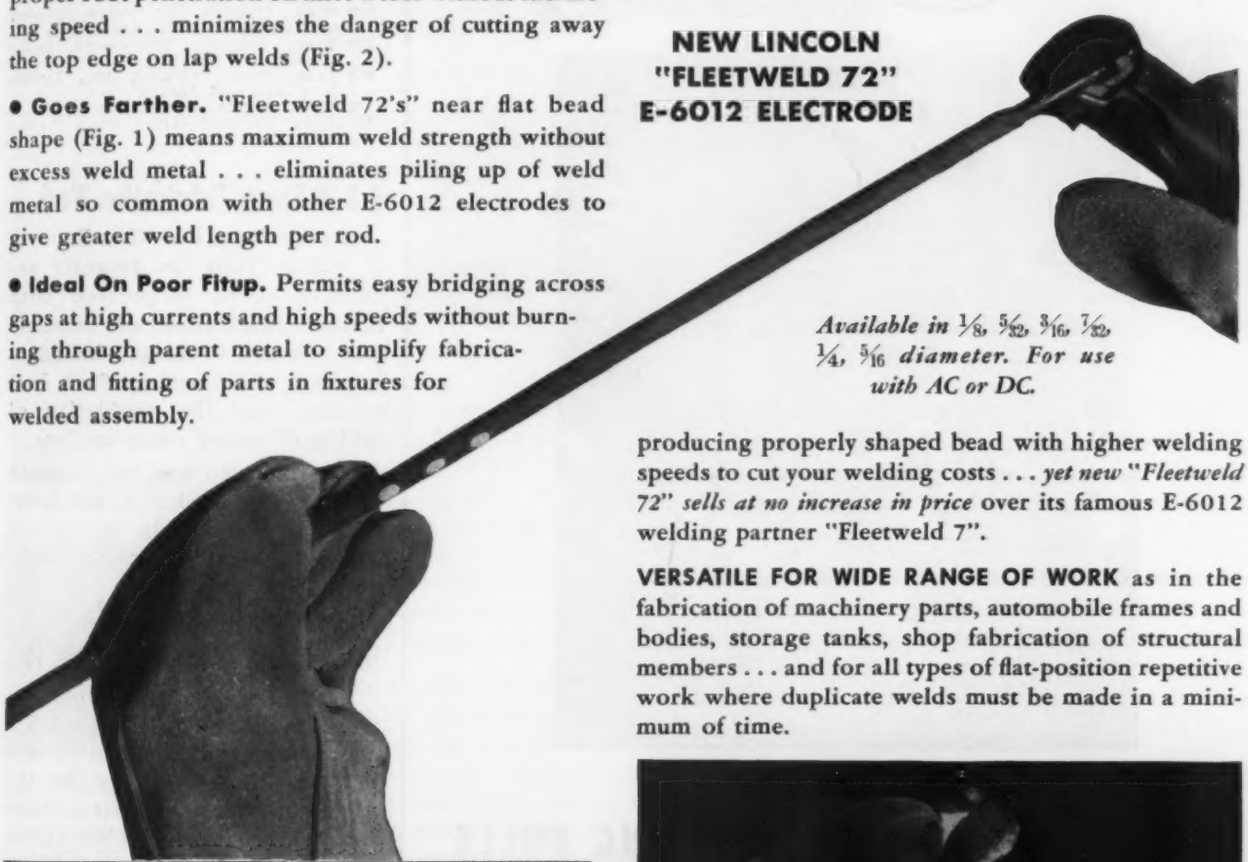
• **Welds Easier.** Unique arc characteristics assure proper root penetration on fillet welds without sacrificing speed . . . minimizes the danger of cutting away the top edge on lap welds (Fig. 2).

• **Goes Farther.** "Fleetweld 72's" near flat bead shape (Fig. 1) means maximum weld strength without excess weld metal . . . eliminates piling up of weld metal so common with other E-6012 electrodes to give greater weld length per rod.

• **Ideal On Poor Fitup.** Permits easy bridging across gaps at high currents and high speeds without burning through parent metal to simplify fabrication and fitting of parts in fixtures for welded assembly.

• **Needs Less Cleaning.** Smooth, uniform operation over broader current range minimizes spatter . . . On many types of work, slag is practically self-cleaning.

• **Premium Performance At No Extra Cost.** New "Fleetweld 72" combines the benefits of greater ease in producing properly shaped bead with higher welding speeds to cut your welding costs . . . *yet new "Fleetweld 72" sells at no increase in price* over its famous E-6012 welding partner "Fleetweld 7".



Available in 1/8, 5/32, 3/16, 7/32, 1/4, 5/16 diameter. For use with AC or DC.

VERSATILE FOR WIDE RANGE OF WORK as in the fabrication of machinery parts, automobile frames and bodies, storage tanks, shop fabrication of structural members . . . and for all types of flat-position repetitive work where duplicate welds must be made in a minimum of time.

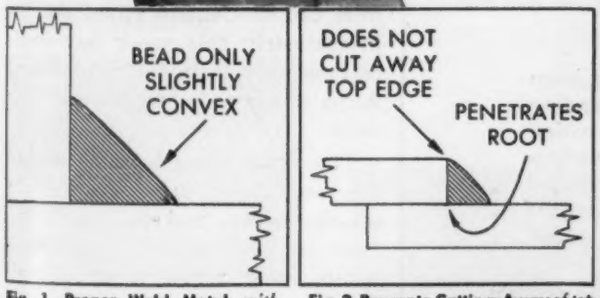


Fig. 1. Proper Weld Metal *with "Fleetweld 72's" near flat bead means greater "mileage" from each electrode.*

Fig. 2. Prevents Cutting-Away *of top edge on lap welds . . . weld flows up to catch top edge without sacrifice in speed. Prevents piling up of metal.*

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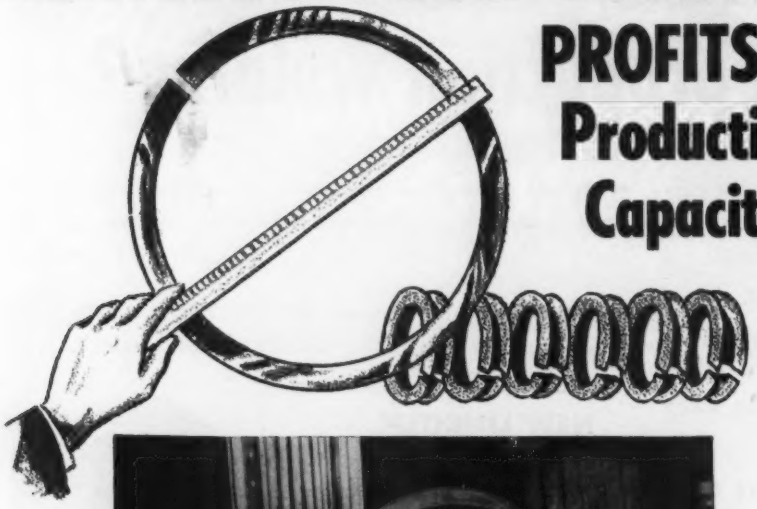
Sales Offices and Field Service Shops in All Principal Cities

MEASURE YOUR BENDING PROFITS by Production Capacity



WITH "Buffalo" BENDING ROLLS

It will pay you to consider the many useful circular items you can produce commercially with "Buffalo" Bending Rolls. They represent the cheapest, quickest and easiest method of making arcs, circles and spirals from various metal shapes and sections. Roll changing time is reduced to a minimum. WRITE FOR BULLETIN 3344-A for the correct Roll for light sections and BULLETIN 352-B for the heavier models.

These machines will bend rings from the following standard sections:

1. Angles, leg-out
2. Angles, leg-in
3. Beams on flanges
4. Channels, flanges-in or out
5. Flats on edge
6. Flats on flat
7. Rounds
8. Squares
9. Copper tubes
10. Standard St. pipe
11. X heavy pipe
12. XX heavy pipe

And many other special sections.

BUFFALO FORGE COMPANY

492 Broadway **Buffalo, N. Y.**

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

Steel Construction—continued

section 31-BC substructure, to U. S. Steel Supply Co., Chicago.

150 **Tons,** Milwaukee, Columbia Hospital addition, to Bethlehem Steel Corp.

Reinforcing bar inquiries this week included the following:

2590 **Tons,** Los Angeles, Tujunga Wash improvement, Los Angeles District Engineer, Ser. CIVENG-04-353-50-34, bids to June 14.
625 **Tons,** Chicago, Sheraton Tower Apts.
460 **Tons,** Chicago, Mt. Sinai Hospital.
375 **Tons,** Pittsburgh, Alcoa Building.
320 **Tons,** Langley Field, Va., transonic tunnel, shop and laboratory.
290 **Tons,** Somerset, Pa., Somerset State Hospital.
270 **Tons,** Chicago, American National Bank and Trust building.
265 **Tons,** Freeport, Ill., junior high school.
220 **Tons,** Chicago, St. Peters Church and Monastery, bids taken May 15.
220 **Tons,** Chicago, Franciscan Order Church and Priory.
215 **Tons,** Potter County, Pa., Lyman Run lake and dam.
175 **Tons,** Dayton, interceptor sewer.
105 **Tons,** Marshall, Minn., State Project 4208-17.

B & W Starts Fabrication Work

Beaver Falls, Pa.—The Babcock & Wilcox Tube Co. recently announced plans to proceed with limited fabrication of seamless and welded tubing, including bending, end forming, flash butt welding, and the production of tubing of varied cross sections.

Also reported was the issuance of a new data card, TDC 135, tabulating prices to help individuals in purchasing or estimating costs.

Alcoa Aluminum Pig And Ingot Prices Increase ½¢ per lb

New York—Aluminum pig and ingot prices were advanced ½¢ per lb last week to 16½¢ and 17½¢ a lb, respectively, by the Aluminum Co. of America. Other domestic producers and the Aluminum Co. of Canada stood pat on prices early this week but indications pointed to their following Alcoa's example within a few days.

The price hikes have unsettled the secondary ingot market in which ingot makers, suffering from a shortage of aluminum scrap, must revise scrap buying and ingot prices. Secondary aluminum prices are expected to increase by an average of 1¢ per lb.

Alcoa cites higher costs in the last few months as responsible for the boosts. Price increases on aluminum mill products are also expected shortly.

How a 5 minute interview led to *a Saving of $9600 a Year!*

"Treasure hunting" for ways to cut production costs, a leading Philadelphia manufacturer* called in one of our Alemite Lubrication Engineers. His presentation of how to save through more efficient lubrication was timed to take 5 minutes. But it led to the adoption of new methods that are saving the company $9600 a year!

An Alemite System was planned and installed, and immediately began to effect savings three ways: 1. Saving $4.60 per day for labor in lubricating the machines. 2. Cutting bearing failures and replacement costs to the bone. 3. Eliminating "down-time" for lubrication that resulted in $40 worth of added production per day.

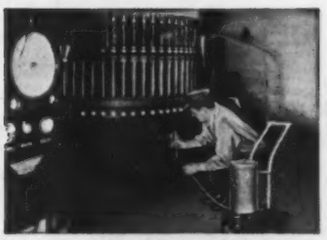
No matter what size or type of plant you operate, Alemite can show you dozens of examples of worthwhile savings through more efficient handling of petroleum products. These are facts which you can readily confirm in your own time studies. Contact your local Alemite Industrial Distributor now. Or send for free booklet "11 Ways to Cut Production Costs." Simply attach coupon below to your letterhead. Alemite, Dept. N-50, 1850 Diversey Parkway, Chicago 14, Ill.

*Name on request

Alemite Cuts Costs 3 Ways

1. ***In Transferring Lubricants...*** by eliminating mess, expensive contamination—and cutting man hours 63% for every 100 pounds of lubricant transferred.

2. ***In Loading Grease Guns . . .*** by saving 3¾ man hours for every 100 pounds of lubricant loaded into hand guns.



3. ***In Applying Lubricants . . .*** by saving up to 23.9 man hours for every 100 pounds of lubricant applied to bearings.

ALEMITE

MEANS EVERYTHING FOR LUBRICATION

1. Methods 2. Lubricants 3. Equipment

Another Product of Stewart-Warner

FREE! New Booklet

"11 Ways to Cut Production Costs"...
(simply attach to your letterhead)

Alemite, Dept. N-50,
1850 Diversey Parkway, Chicago 14, Illinois

Please send me without charge or obligation your booklet "11 Ways to Cut Production Costs."

Name _____

Company _____

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the most important Question about Chain:

WHO MAKES IT?...

Whether you buy chain for your own use or as part of your product, you want to know that it is good, strong, dependable, high quality chain. And the best way to be sure of that is to know who made it.

Nothing will ever lower the quality of ACCO Welded Chain, Weldless Chain, or Attachments. Our research department is constantly endeavoring to improve the quality of American Chain, thereby increasing its service to the user.

Buy AMERICAN
... the complete chain line

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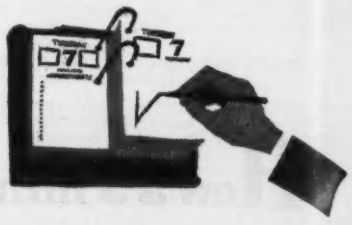
In Business for Your Safety

Dates to Remember



May 25-27 — Society for Experimental Stress Analysis, spring meeting, Hotel Statler, Cleveland. Society post office address is Box 168, Cambridge, Mass.

May 26-27—Society for Applied Spectroscopy, annual meeting, Socony-Vacuum Training Center, New York. Society secretary is Ruth Abbott, American Cyanamid Co., Bound Brook, N. J.

May 27-30—Gas Appliance Manufacturers Assn., annual meeting, Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 60 E. 42nd St., New York.

May 29-June 9—Canadian International Trade Fair, Exhibition Grounds, Toronto.

June 1-2—American Society for Quality Control, national convention and midwest conference, Milwaukee Auditorium, Milwaukee. Society headquarters are at 4949 W. 65th St., Chicago.

June 1-3—Electric Metal Makers Guild, Inc., annual meeting, Shawnee Hotel, Springfield, Ohio. Guild post office address is Box 6026, Mt. Washington Station, Pittsburgh.

June 4-7 — National Industrial Service Assn., Inc., annual convention, Hotel Statler, Boston. Association headquarters are at 818 Olive St., St. Louis.

June 4-9—Society of Automotive Engineers, summer meeting, French Lick Springs Hotel, French Lick, Ind. Society headquarters are at 29 W. 39th St., New York.

June 5-7—American Gear Manufacturers Assn., annual meeting, The Homestead, Hot Springs, Va. Association headquarters are in the Empire Bldg., Pittsburgh.

June 8-10—National Society of Professional Engineers, annual meeting, Hotel Statler, Boston. Society headquarters are at National Press Bldg., Washington.

June 11-14—National Purchasing Agents Assn., annual convention, Public Auditorium, Cleveland. Association headquarters are at 11 Park Place, New York.

June 12-16—American Electroplaters' Society in collaboration with the Electrodepositors' Technical Society of England, international electrodeposition conference, Statler Hotel, Boston. Society headquarters are at 473 York Road, Jenkintown, Pa.

June 19-23—American Society of Mechanical Engineers, semiannual meeting, Hotel Statler, St. Louis. Society headquarters are at 29 W. 39th St., New York.

June 22-23—Malleable Founders' Society, annual meeting, The Homestead, Hot Springs, Va. Society headquarters are in the Union Commerce Bldg., Cleveland.

June 26-30—American Society for Testing Materials, annual meeting and exhibit, Chalfonte-Haddon Hall, Atlantic City, N. J. Society headquarters are at 1916 Race St., Philadelphia.

Oct. 23-27—National Metal Congress & Exposition, International Amphitheater, Chicago. American Society for Metals headquarters are at 7301 Euclid Ave., Cleveland.

SPECIALISTS IN

SMALL ROLLS

for

TUBE · PIPE

ROD · STRUCTURAL

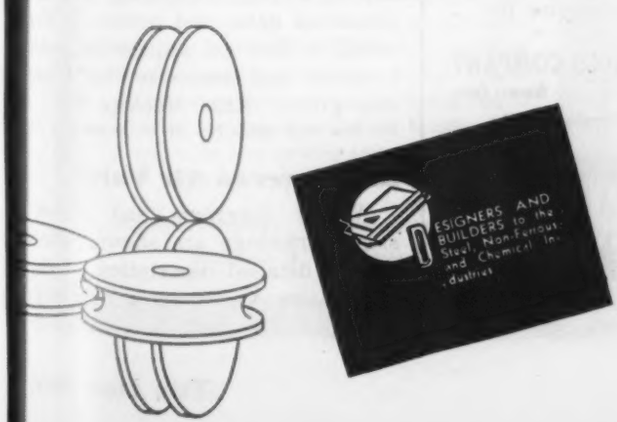
BAR · BILLET

Small rolls have been an important specialty of Aetna-Standard for 36 years . . . for a very good reason.

Aetna as designers and builders of most of the world's seamless tube mills and continuous butt weld pipe mills, has naturally developed roll technique and facilities towards small rolls. Consequently, our foundry is equipped and our facilities are especially adapted for the manufacture of small rolling mill rolls. For example, Aetna roll foundry had to develop a special roll for their new continuous butt weld pipe mills, which now are producing small diameter pipe at speeds up to one thousand feet per minute. Our roll specialists work together with our engineers during the development stage of a mill.

Aetna-Standard has a long record of experience in making small rolls.

★



THE AETNA-STANDARD ENGINEERING COMPANY

YOUNGSTOWN, OHIO

ASSOCIATED COMPANIES

AETNA-STANDARD ENGINEERING CO., LTD., TORONTO, ONTARIO, CANADA
HEAD, WRIGHTSON & COMPANY, LTD., THORNABY-ON-TEES, ENGLAND
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TYPES

PLAIN CHILL	ALANITE
SAND IRON	ASEX GRAIN
MOLY CHILL	ASEX SPECIAL

NICKEL CHILL

SHENANGO-PENN *Centrifugal* CASTINGS ... KEY TO SAVINGS

Bronze end bushings, left, as well as large cast iron mandrels, above, (shown with bushings in place) were cast centrifugally and finish machined by Shenango-Penn, evidencing wide flexibility of Shenango-Penn centrifugal technique. Used in forming composition pipe, mandrels must withstand repetitive high pressures and stresses.

For high pressures, high stresses . . .

IF you need rolls, or *any* symmetrical or annular parts requiring unusual strength, uniformity, wear resistance or freedom from porosity and defects, check with Shenango-Penn. These very qualities are inherent in the carefully controlled Shenango-Penn *centrifugal* casting process. You stand to save time and money . . . to avoid needless trouble.

Check also on Shenango-Penn's modern machining and finishing service. It combines complete facilities and years of specialized experience to meet your specifications with over-all precision . . . another time-and-money saver!

For free descriptive bulletins, for specific data on ferrous or nonferrous work, large or small, semi or finish machined, write to . . .

SHENANGO-PENN MOLD COMPANY
586 West Third Street Dover, Ohio
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SHENANGO PENN

ALL RED BRONZES • MANGANESE BRONZES • ALUMINUM BRONZES
MONEL METAL • NI-RESIST • MEEHANITE® METAL

FREE

PUBLICATIONS

Continued from Page 36

new 2-p. bulletin. Principle of operation of this direct reading indicator is explained, and ways in which it effects greater economies are given. *Wheelco Instruments Co.*

For free copy check No. 8 on postcard p. 37

Cool off!

A new 12-p. catalog covers the complete line of G-E packaged air conditioners in five capacities, ranging from 2 to 10 hp. It includes descriptions and illustrations of all the conditioners and a cutaway drawing showing how a packaged unit operates. Substantial savings and important benefits are described along with complete data on each model. *General Electric Co.*

For free copy check No. 9 on postcard p. 37

Surface Grinders

Complete details of construction and operation of the Crystal Lake 6x12x15 in. high, temperature controlled spindle surface grinders are presented in a new 4-p. folder. These machines were designed for applications involving grinding of hard materials to fine finish, flatness and perfect form. *Crystal Lake Grinders.*

For free copy check No. 10 on postcard p. 37

Adjustable Broaches

All 33 sizes of Glenny broaches are listed in chart form in a new bulletin, with specifications on diameters, overall lengths, and the sizes of interchangeable high-speed cutting blades. Operating and engineering data, and prices on the complete line of adjustable push broaches and accessory items are also given. *Kase Machine Co.*

For free copy check No. 11 on postcard p. 37

Air Powered Air Valve

Wiring diagrams and dimensional drawings are shown, along with a detailed description of the Electroaire Valve, in a new 6-p. bulletin. The unit is a solenoid-

Finish Intricate Parts
Quickly and Economically—
with Precision Tumbling
and ALUNDUM Abrasive!
You can remove objectionable heat scale, burrs, tool marks and dirt from your metal parts, and can improve their finish and prepare them for subsequent plating — ALL IN ONE OPERATION — with precision tumbling and ALUNDUM Tumbling Abrasive!
By taking advantage of precision tumbling and ALUNDUM Tumbling Abrasive you can eliminate the danger of pitting the surface of the parts with acid dip methods—eliminate slow, expensive polishing operations—and obtain cleaner, better-surfaced parts quickly and far more economically. For full details on the precision tumbling process and ALUNDUM Tumbling Abrasive, contact your Norton abrasive engineer or distributor, or write for a free copy of "Precision Tumbling with ALUNDUM Abrasive." And if you do not have tumbling equipment Norton can make test runs for you—no obligation.
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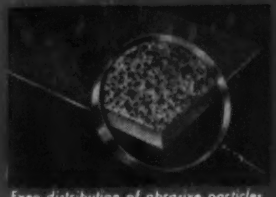
NORTON
ABRASIVES

NOW! END SLIPPING ACCIDENTS WITH A.W. ALGRIP

(POSITIVE NON-SLIP FLOOR PLATE)

Non-slip—Even on Steep Inclines



Even distribution of abrasive particles shown by magnifying glass.

Prevents slipping on factory floors, walkways, etc.

Protects workmen and vehicles from slipping on ramps and loading platforms.

REVOLUTIONARY, NEW ABRASIVE ROLLED STEEL FLOOR PLATE

Now, for the first time you can prevent dangerous, expensive slipping accidents with A.W. ALGRIP ABRASIVE Rolled Steel Floor Plate. It's the non-slip floor plate that safety engineers, architects, purchasing agents and plant owners have always wanted.

A.W. ALGRIP is made by rolling abrasive grain as an integral part of the upper portion of steel plate. It retains its non-slip qualities for a lifetime, because as the surface wears new abrasive particles are constantly exposed.

Install A.W. ALGRIP for positive non-slip protection in all areas subjected to oil, grease or water on which men walk or climb . . . loading platforms, ramps, washroom floors, fire escapes, running boards and similar surfaces. A.W. ALGRIP prevents slipping even on steep inclines. And remember it's low in cost, easy to install, requires no maintenance, and is resistant to heat, fire and heavy traffic.

Write or use coupon for complete information about this amazing, new, non-slip floor plate now.

NEW ■ NEW ■ NEW ■

Specify N-B-M BRONZE CASTINGS

for higher steel mill production... lower costs!

Custom-engineered alloys — plus close foundry control — insures longer, more economical service

Longer life means less down-time . . . actual dollar-savings in the operating costs of your mill. You specify longer life when you specify N-B-M Bronze Castings . . . because of this important 3-Way Service offered by National Bearing Division:

Research . . . that in case after case has developed new alloys that roll up new tonnage records.

Engineering . . . that results in new and better designs to help solve old maintenance and production problems.

Facilities . . . for close foundry control that insures sound, dense castings—as-cast or machined to any degree of finish you desire.

From huge screw-down nuts to a complete line of Cored and Solid Bars for small bearings and bushings, put this 3-Way Service to work in your mill!

All types of Manganese, Aluminum, Nickel and High Tensile Bronze Alloys ...produced to your specifications or from our own service-proved formulas

AMERICAN Brake Shoe COMPANY

NATIONAL BEARING DIVISION

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how Aircomatic® and Heliwelding teamed to fabricate a tough aluminum job

GRIFFIN & COMPANY, Louisville, Ky., received a contract to fabricate a number of all-aluminum evaporative cooler assemblies recently. Part of the assembly consisted of a tank 6½′ long, 5′ wide and 2′ high, constructed of 3/16″ aluminum sheets. Air Reduction was consulted to determine the most expedient welding process.

J. X. Merkt and C. G. Davis, Airco Technical Sales Representatives, recommended that both Aircomatic welding and Heliwelding be used. The high speed and the ability to make welds without interruption resulted in an economy that clearly favored Aircomatic for the tank welding. Heliwelding was used in the fittings because Aircomatic's extreme high speed would have made this application quite difficult.

In all, there were 279″ of weld per tank and the approximate welding time, including fit-up and tacking, was but one hour. *Warpage and distortion were completely eliminated and, thus far, 120 of these assemblies have been completed without a single leak.* The amount of aluminum used on this job totalled 125 tons.

If you have a particular fabrication problem involving aluminum, stainless or the bronzes, investigate the advantages of Aircomatic and Heliwelding. For technical service or for descriptive literature on these two processes, please write your nearest Airco office for copies of ADC-709 and ADC-661.

AIRCO **AIR REDUCTION**

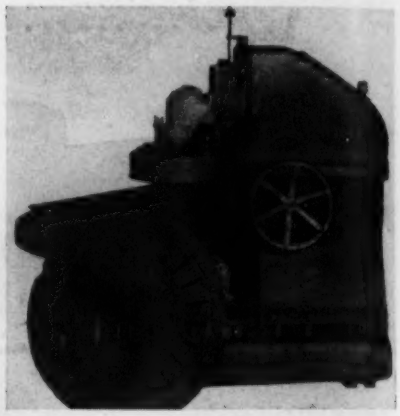
Offices in Principal Cities

TECHNICAL SALES SERVICE—ANOTHER AIRCO PLUS-VALUE FOR CUSTOMERS

NEW PRODUCTION IDEAS

Continued from Page 40

protected against dust. Rotation of the table can be controlled manually or by an adjustable speed reducer. A ¾ hp motor mounted on a counter-balanced sliding head

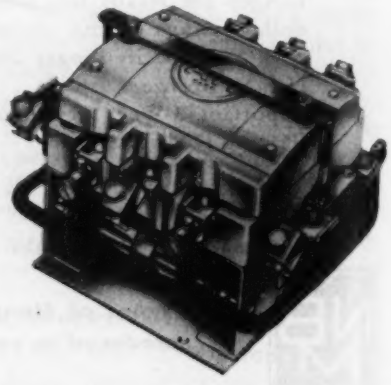


furnishes direct power to the grinding wheel which can be adjusted in any vertical setting. The machine can be operated by unskilled workmen. *Standard Pattern Works.*

For more data check No. 32 on postcard, p. 37

Magnetic Starter

The new size 4 RA magnetic starter measures 11 in. wide x 10 in. high x 7¼ in. deep. Compact-



ness of the unit is achieved by use of a right angle balanced mechanism that employs full magnet power without lifting extra weight. A knee-action bellcrank fulcrum

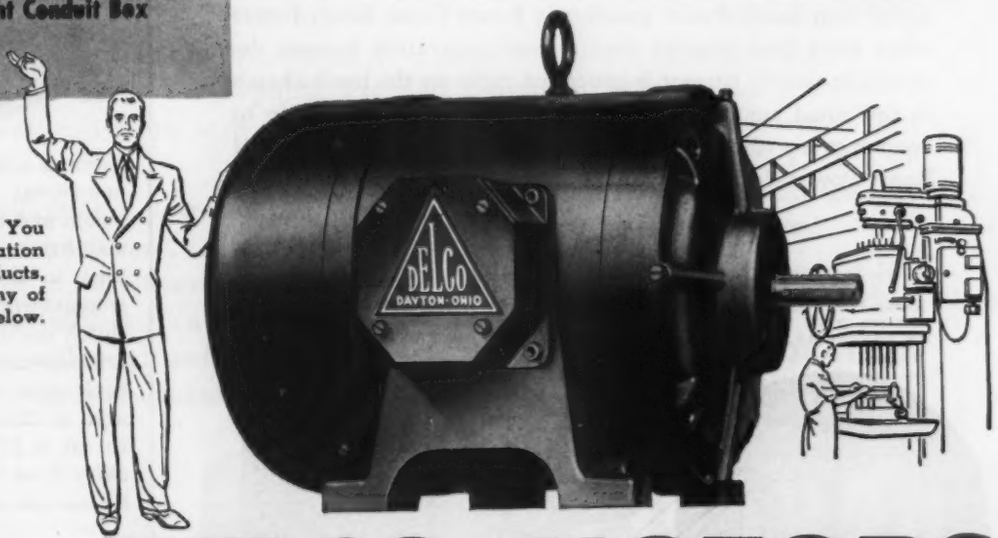
The Chief Engineer Lays Down the Law...

Delco Preferred!

- Positioned Bearings
- Delcote Coil Insulation
- Corrosive-Resistant Cast Iron Frame
- Positive Lubrication
- Dynamically-Balanced Rotor and Shaft Assembly
- Water-Tight Conduit Box

Get the Motor that Keeps Machines Rolling

It's on more and more spec sheets—those two important words, "DELCO PREFERRED." Because here's a motor built the way production men want motors built: sturdy, rugged, dependable. Just take a look at the *performance extras* that Delco Motors give you to eliminate machine down-time, cut down motor maintenance.



Want to find out more? You can get complete information by contacting Delco Products, Dayton, Ohio . . . or any of the sales offices listed below.

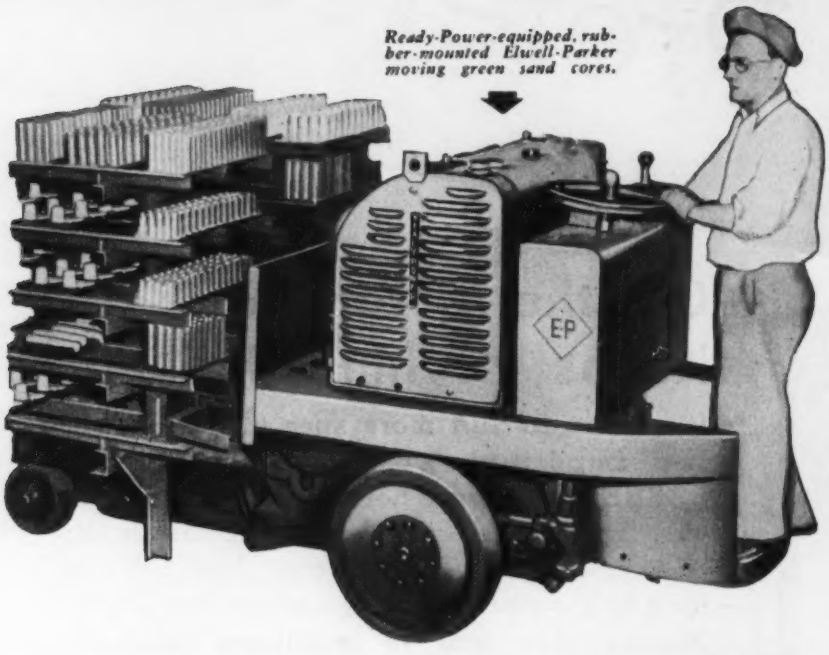
DELCO DAYTON OHIO

DELCO MOTORS

DELCO PRODUCTS, DIVISION OF GENERAL MOTORS CORPORATION, DAYTON, OHIO

SALES OFFICES: CHICAGO • CINCINNATI • CLEVELAND • DETROIT • HARTFORD, CONN.

READY-POWER for smooth operation



Ready-Power-equipped, rubber-mounted Elwell-Parker moving green sand cores.

If it's smooth, electric truck operation you want, there's nothing better than Ready-Power gas-electric Power Units. Ready-Power offers *more* than regular electric truck operation because dependable electric current is generated right on the truck chassis in unlimited amounts. That means trucks are always ready to operate at top efficiency . . . 'round the clock if necessary. Install Ready-Power Units on any make electric truck. Write for details.

Ready-Power-equipped Mercury truck loading an annealing oven.

THE READY-POWER CO.

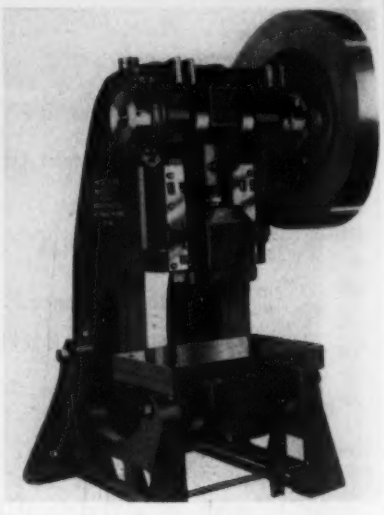
3822 Grand River Ave., Detroit 8, Michigan

multiplies the leverage and transfers it from a vertical to a horizontal plane. Contact pressure is increased, while wattage consumption is said to be reduced. Straight line action, positive contacting, and steady motion are assured by four-pillar-guided alignment. Arc control is obtained by design innovations. Wiring is straight through. Terminals are accessible from the top. *Arrow-Hart & Hegeman Electric Co.*

For more data check No. 33 on postcard, p. 37

Inclinable Power Press

The new 85-ton Press-Rite open back inclinable power press features a one-piece special alloy frame with built-in tie rods to insure rigidity and strength. Other



features include the Press-Rite non-repeat single stroke mechanism and the automatic cam actuated brake, antifriction roller bearings in the flywheel, four point engagement special sliding key clutch on the flywheel drive or air friction clutch and brake on the back geared press. The bolster area is 22x36 in. and the depth of throat is 12 in. *Sales Service Machine Tool Co.*

For more data check No. 34 on postcard, p. 37

Truck Battery Charger

Versatile and fully automatic, new single-circuit rotating-type battery-charging equipment for electrical industrial trucks has more than 2000 available adjust-

FOUNDRY PROBLEMS?

Time to call for the . . .

Whatever the problems in your foundry, it's a good bet that the Republic Pig Iron Metallurgist can help you solve them—*in a hurry!*

His qualifications: years of practical foundry experience . . . a thorough knowledge of all types of pig iron and their characteristics . . . a natural ability to analyze and weigh end results before making a recommendation.

Large and small foundries alike make it a point to keep in touch with the Republic Pig Iron Metallurgist. Why not follow their example? There's no charge for his service . . . and the only obligation is his—*to help you!*

Just let us know when you would like him to call.

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Republic **PIG IRON**

"CHATEAUGAY" Low-Phosphorus, Copper-Free · "REPUBLIC" (Northern) Foundry, Basic and Malleable · "PIONEER" (Southern) Foundry and Basic

REPUBLIC STEEL

ALSO TRUSCON FOUNDRY FLASKS • REPUBLIC CORE WIRE • FOUNDRY NAILS

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TO CUT REAMING COSTS!

1 LESS TOOL COST! W-S complete line of carbide reamers covers over 90% of reaming jobs. Reduced inventory!

2 GREATER ACCURACY! Precision tolerance as close as .0001. Lapped and protected grinding centers for more accurate resharpening.

3 BETTER FINISH! Grinding operations eliminated. All W-S reamers have diamond-lapped cutting edges and special hardened steel bodies stress-relieved before brazing.

4 IMPROVED DESIGN! New type of tool construction. Highly polished flutes with greater chip capacity.

Rely on the famous W-S complete line of carbide reamers — tried and proved for 15 years — to improve production at LOWER COST! Complete range of sizes . . . wide selection of styles . . . straight or taper shanks of hardened steel. Quick delivery on standard reamers with special diameters and tolerances. Make your next reamer order a W-S order . . . see your Wendt-Sonis distributor.

Free! NEW REAMING INSTRUCTION CHART

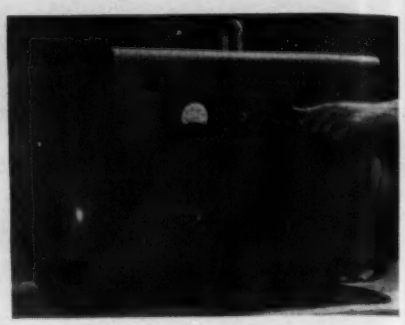
Determines speed and horsepower for cutting steel, ferrous, non-ferrous and non-metallic materials. Write today: WENDT-SONIS COMPANY, Hannibal, Missouri — 580 North Prairie Avenue, Hawthorne, Calif., 549 West Randolph, Chicago, Ill. Warehousing Facilities: Eastern Carbide Corp., 909 Main St., New Rochelle, N. Y.

WENDT SONIS

CARBIDE CUTTING TOOLS

BORING TOOLS • CENTERS • COUNTERBORES • SPOTFACERS • CUT-OFF TOOLS
DRILLS • END MILLS • FLY CUTTERS • TOOL BITS • MILLING CUTTERS • REAMERS
ROLLER TURNING TOOLS • SPECIAL BITS

ments of charging characteristics, and meets the charging requirements of manufacturers of industrial batteries to provide maximum battery life and output. Available

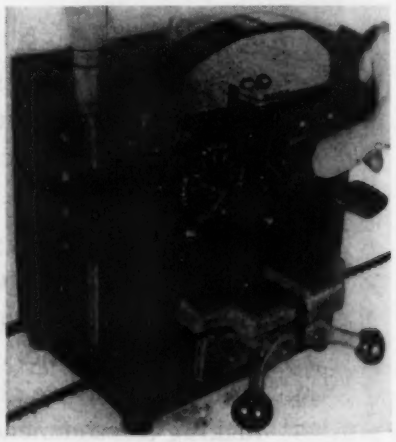


in two models, the charger is adaptable to, and includes all components for lead-acid and nickel-iron-alkaline batteries. Battery cutoff and charger shut-down are automatic when battery is fully charged. *General Electric Co.*

For more data check No. 35 on postcard, p. 37

Portable Butt Welder

A new portable, automatic saw blade welder enables users of band-sawing equipment to perform internal sawing operations, repair broken bands, and weld lengths to fit the machine. Weighing 25 lb,



the welder permits on-the-spot welding and annealing of saw blades up to ½ in. wide. The unit measures 7x8x10¾ in. high and has a 6 ft cord to plug into 110 or 220 v, 50 or 60 cycle line. A weld selector automatically provides correct spring tension to the welding jaw for welding blades. A push-button switch controls correct

Eaton Permanent Mold Gray Iron Castings

for HYDRAULIC APPLICATIONS

- **Free machinability**
- **Dense, homogeneous structure**
- **Freedom from leakage under pressure**
- **Machines to high, mirror-like finish**
- **Properly annealed; no growth or distortion after machining**

Send for your copy of the illustrated booklet, "A Quick Picture of the Eaton Permanent Mold Process for Producing Gray Iron Castings."

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ACTUAL production costs show that improved quality and fewer rejects have added materially to the profits of foundries using AlSiMag Strainer Cores.

One foundry saves thousands of dollars each year on cylinder head castings weighing about 125 pounds. Another foundry, making equally impressive savings, also says: "In all cases a definite improvement was noted if the molding procedure included the use of AlSiMag Strainer Cores."

AlSiMag Strainer Cores or Cut Off Cores are custom-made for your requirements. They are strong, hard, flat, rigid . . . stand up under fast, rough handling. AlSiMag Cores are not affected by molten metal temperatures normal to foundries. You get faster production and a higher percentage of perfect, smooth castings.

FREE SAMPLES ON REQUEST

Samples of AlSiMag Cores from sizes in stock are sent free on request. Test samples made to your specifications at reasonable cost. Write for samples. Test them in your own foundry. Keep a record of the results. You will see, as other foundries have, that AlSiMag Cores pay for themselves many times over.

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amount of heat for annealing operations. Accessory equipment includes a blade squaring shear and etching pencil. *DoAll Co.*

For more data check No. 36 on postcard, p. 37

Drill Press Feeds

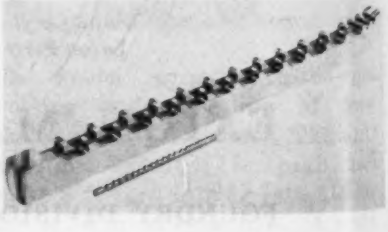
New automatic air power feeds for small drill presses are claimed to provide proper thrust and correct drilling action for various size drills working in any drillable ma-

terial. Other operating features include instant reversal of thrust on breakthrough; no hydraulic checking devices required for light work; accuracy of 0.001 in. maintained on depth control; and speed of stroke is infinitely variable in either direction. The air feed operates on low pressures, either by a hand trip rod or foot switch. Continuous or single cycle operation can be employed. *Beckett-Harcum Co.*

For more data check No. 37 on postcard, p. 37

Large Keyway Broach

New Minute Man keyway broaches for cutting 7/8 and 1 in. keyways are equipped with staggered teeth to provide ample chip



room for heavy cuts in long bores. The cutting teeth are ground with a sufficient number of chip breakers to reduce the amount of pressure

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BAIRD HIGH PRODUCTION MACHINES

• For producing articles made of wire, ribbon metal, castings, forgings or cut-off bar stock.

• BAIRD 76H Chucker is an Automatic 7" Six Spindle, Indexing, Horizontal Lathe with different speeds available at the work spindles for different operations in the one handling of a piece and with other time saving features.

• BAIRD 54VC Lathe is an automatic 5" Four Spindle, Vertical Continuous Machine for many light or finishing cuts on parts, as facing ends or chamfering grooves on pistons, etc.

• Baird 12-Station Duplex Turning Machine is for such as turning the four trunnions on the "spider" or journals for universal joints and boring and facing the yokes of such joints.

• BAIRD Multiple Transfer Presses for multiple operation in one handling on articles made from ribbon metal.

BAIRD ALSO MAKES

• BAIRD Four Slide Wire and Ribbon Metal Forming Machines in many sizes to cover the thousands of articles made from wire and ribbon metal.

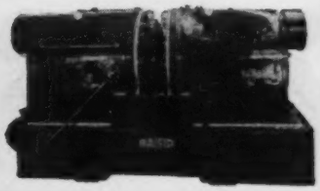
• BAIRD Tumbling Equipment for deburring, smoothing, cleaning, polishing, ball burnishing, heated drying, etc.

Send samples of *each article* you want to make in quantity.

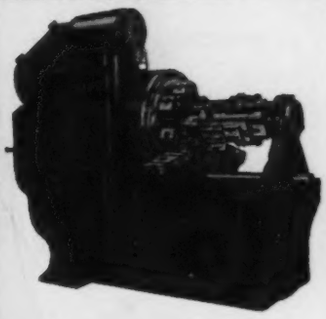
State the quantities to be made of *each piece* you want to make *in a given time.*

Give electrical current specifications AND

Ask Baird About It

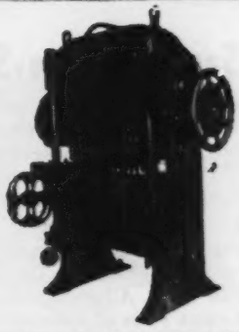


BAIRD 12 STATION DUPLEX TURNING



BAIRD 76H CHUCKING MACHINE

BAIRD 54VC LATHE



BAIRD MULTIPLE TRANSFER PRESS

THE BAIRD MACHINE COMPANY
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You'll have full information on cost-cutting doors for every need in this complete new Kinnear catalog. For example, it presents:

Kinnear Rolling Doors. The famous interlocking steel-slat doors—*originated by Kinnear*—glide smoothly, easily upward, coiling out of the way overhead. They save floor and wall space. All-metal construction assures extra years of low-cost service, protection against fire, storm, intrusion, and accidental damage. Available with Kinnear motor operators and push-button control.

Kinnear Rolling Fire Doors. The famous "Ak-bar" Fire Door, similar to doors above, but featuring automatic closure in case of fire, with safety for building occupants.

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Kinnear Bi-Fold Doors. Two-section doors of wood or metal that "jacknife" to overhead position. Paneled for glass as desired.

Kinnear Rolling Grilles. Sturdy upward-coiling curtain of interlocking steel bars and links that protect property without blocking light, vision, or sound. Any size.

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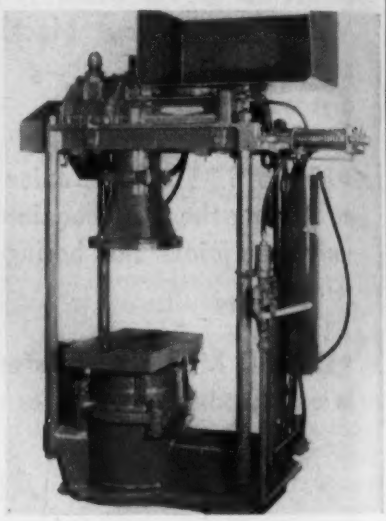
Saving Ways in Doorways
KINNEAR
ROLLING DOORS

to push the broach through the bore. The shank end of the large broaches has a ½ in. reamed hole for quick locating and alignment of an extension shank. *Du Mont Corp.*

For more data check No. 38 on postcard, p. 37

Automatic Core Blower

The improved Osborn core blower features fully automatic controls. The operating cycle of clamping the core box, blowing the core, drawing the core, and refilling the sand reservoir is automatically performed with only one manual control valve and the cycle is automatically terminated after each core is blown. This control can be used on either diaphragm or draw type Osborn core blowers. For the diaphragm type machine, average cycle is 4 sec and the blowing can be adjusted. On draw type machines, the cycle varies from 8 to 12 sec. Blowing time and vertical clamping pressures are adjustable. Control valves are mounted on a panel on the right rear rod of the machines. *Osborn Mfg. Co.*



For more data check No. 39 on postcard, p. 37

Tri-Roll Comparator

Rapid and accurate checking of male threads is made possible by the new P&W Tri-Roll thread comparator. The instrument may be operated with a minimum of skill and requires no computations or auxiliary equipment. Externally

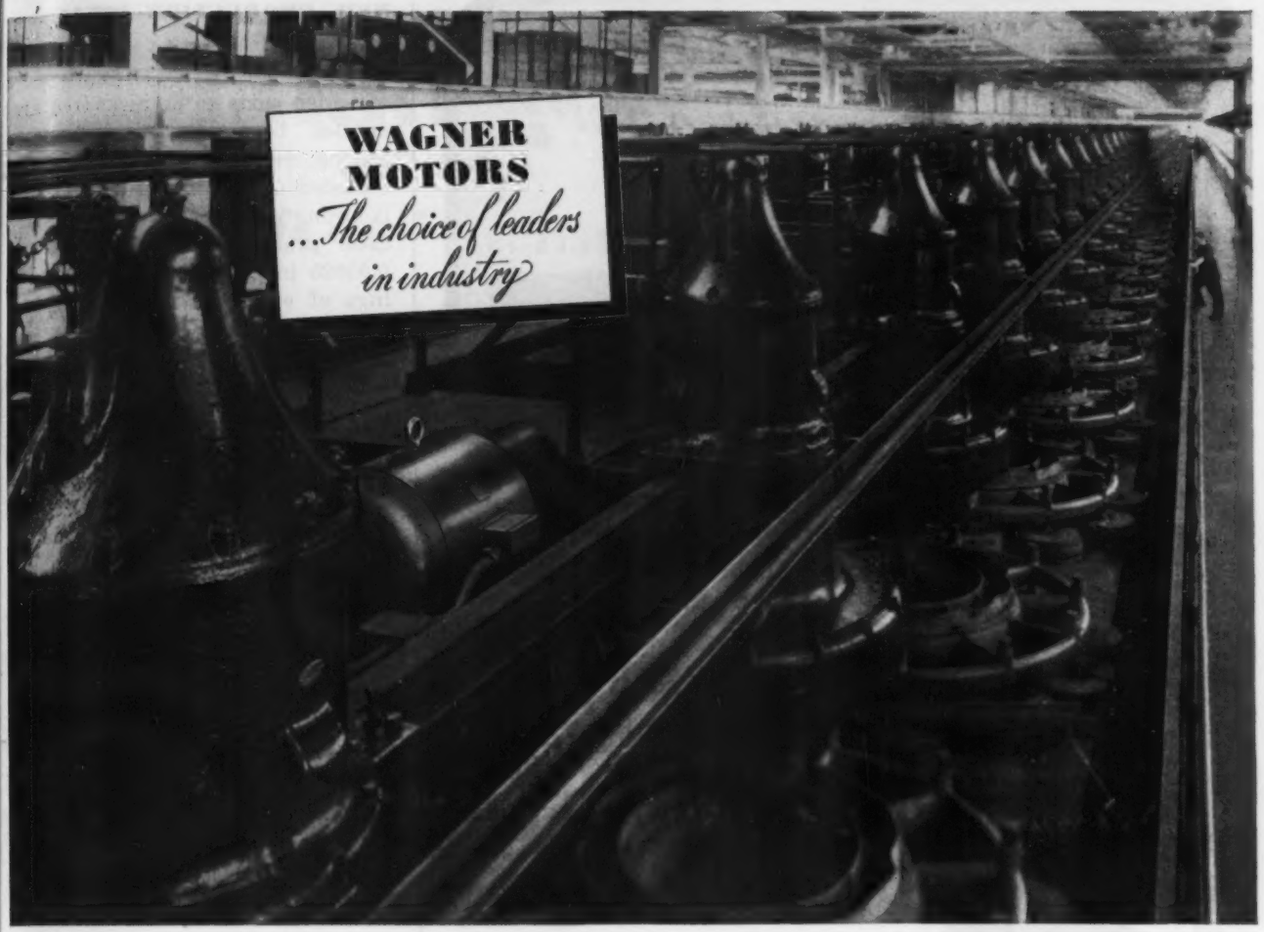


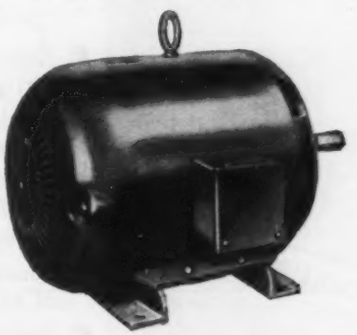
Plate glass polishing for Ford demands polished motor performance

Polishing the clear, safe-vision glass that is turned out in the Ford Motor Company glass plant at Dearborn, Michigan, is a big job. Huge lines of these 60 grinding and 100 polishing machines, which are so delicately aligned that they compensate for the curvature of the earth, are in daily 24-hour operation. This calls for polished performance . . . perfect, dependable service . . . on the part of the motors that power the tireless machines. It is significant that a battery of Wagner 40-hp type CP totally-enclosed, fan-cooled motors are used at this rigorous application.

For *your* requirements . . . there is a Wagner motor to answer every need for a standard type of electric motor in sizes from 1/125 hp to 400 hp . . . a complete line for all current specifications, with a wide variety of enclosure types and mountings.

Wagner engineers are qualified to specify the correct motor for your needs. Consult the nearest of our 31 branch offices or write us.

Continuous, unfailing power for the Ford plant grinding and polishing machines is furnished by Wagner 40-hp type CP, 445 frame, 1200 rpm. motors. There is a specific motor equally applicable to your exact need in the complete line of Wagner standard motors.



Wagner Electric Corporation
EST. WE 1891

WAGNER ELECTRIC CORPORATION
6403 Plymouth Ave., St. Louis 4, Mo., U.S.A.

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

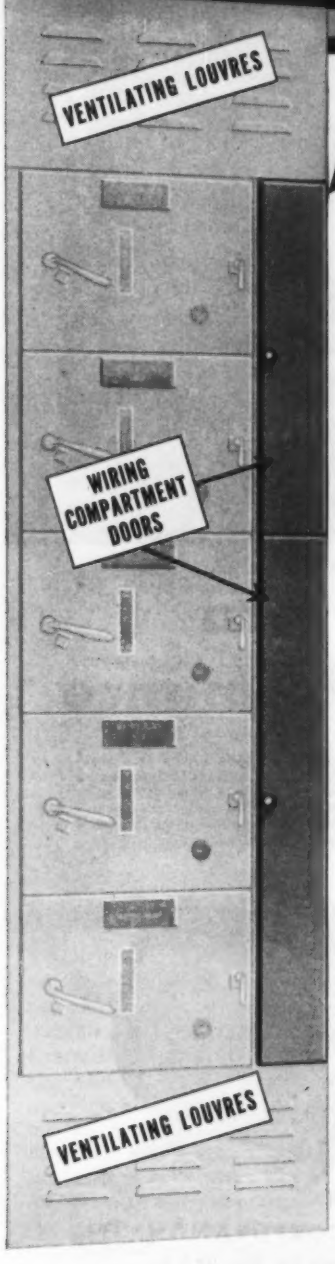
BRANCHES IN 31 PRINCIPAL CITIES

M50-19

There's space galore behind this door!

. . . UNSURPASSED WIRING CONVENIENCE in

CLARK CONTROL CENTERS



Just open the 6-inch wiring compartment doors! No trim or baffle plates to remove before wiring!

CLARK CONTROL CENTERS

provide all these features for your wiring convenience—

- The LARGEST wiring compartments.
- Plenty of room for BIG HANDS to get in.
- The ONLY Control Centers with SEPARATE DOORS on wiring compartments.
- When equipped with terminal blocks, you still don't have to twist to get in from the sides—it's just a "straight ahead" wiring proposition.

OTHER FEATURES OF CLARK CONTROL CENTERS

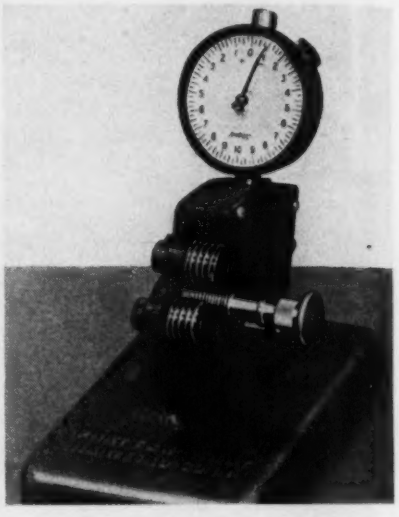
- All units have special tight gripping "plug-in" connectors.
- Control units are easily removed.
- All sections are standard in size, and lend themselves to any rectangular arrangement around columns or corners.
- Interlocking handles must be in "OFF" position before control unit doors can be opened.
- Louvres, top and bottom, provide plenty of ventilation.
- Provision for locking control unit doors prevents tampering.

ASK FOR DESCRIPTIVE BULLETIN 6200

THE CLARK CONTROLLER CO.

ENGINEERED ELECTRICAL CONTROL • 1146 EAST 152ND STREET, CLEVELAND 10, OHIO

threaded parts to be measured are cradled between two stationary gaging rolls and a third roll, mounted on a preloaded armature, is swung into contact. A dial indicator graduated in increments of 0.00025 in. gives cumulative readings of errors in lead, angle and pitch diameter. For checking pitch diameter only, rolls with two annular ribs are used. Initial setting is established with a setting plug. Because of its three-point contact principle, the Tri-Roll is self-cleaning, permits unobstructed visual inspection, and detects out-of-round conditions and dented threads. *Pratt & Whitney, Div. Niles-Bement-Pond Co.*



For more data check No. 40 on postcard, p. 37

Locomotive Crane

A new model crane, known as the Browning Torqflo locomotive crane, operates with torque converter power, similar in operation to the automatic transmissions in automobiles. It is available in three models having 25 to 50-ton capacities. The Torqflo drive is a hydraulic power transmission unit that provides effortless, smooth and fast operation to the travel, swing, hoist and boom hoist mechanisms. Shocks to cables, clutches and gear train are eliminated through the automatic adjustments of the converter. *Browning Crane & Shovel Co.*

For more data check No. 41 on postcard, p. 37

Resume Your Reading on Page 41

MARKET

Briefs and Bulletins

altered prices—Key city warehouse prices went to a higher price range on some products. Warehouse prices in Birmingham, Boston, Chicago, Cleveland, Milwaukee, St. Louis, St. Paul, and Baltimore were raised on hot rolled sheets, 10c per 100 lb; cold rolled sheets, 15c; plates, 20c; shapes, 20c; and hot rolled bars, 10c. Birmingham warehouses also increased the price of cold rolled bars by 15c per 100 lb. Pittsburgh and San Francisco warehouse prices climbed on galvanized sheets by 5c. New York warehouse prices were up on plates and shapes 20c, respectively, and hot rolled bars 15c. Cleveland warehouse price on 10-gage galvanized sheets was raised 5c to $7 a hundred by U. S. Steel Supply and Ryerson. U. S. Steel raised the price of 10-gage galvanized sheets from $6.70 to $6.75 per 100 lb in Chicago.

xylenesulfonic—The price bottom was dropped by the Wyandotte Chemicals Corp., Wyandotte, Mich., on its xylenesulfonic acid product by 30 to 50 pct. The company announced that the price slash on the catalyst and chemical intermediate was effected to encourage "more extensive evaluation of this acid." Other uses listed include surface treatment and descaling of metals and in electroplating baths.

merger tabu—Described by the Federal Trade Commission as a step to sealing "loopholes in Federal antitrust laws," House-passed legislation forbidding any firm from buying the physical assets of a competitor was given a favorable nod by a Senate committee. Endorsed by President Truman, the hoary 20-year-old bill, veteran of many defeats, will come up for a Senate vote soon, its backers feel.

dream stuff—Long-range production planning is a dream hard to realize as far as steel producers are concerned. Just when they feel they are all set to move ahead on an orderly schedule something comes along to upset the applecart. The recent rail strike didn't strangle operations, but it caused plenty of gray hairs over revised production schedules which had to be again revised when the strike was called off.

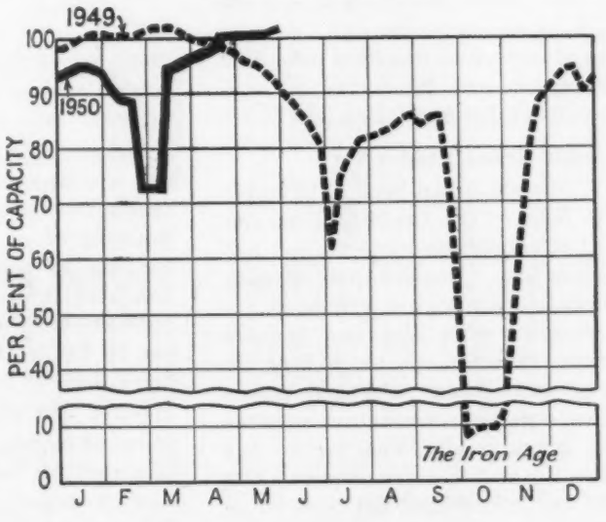
higher prices—The Follansbee Steel Co. raised the price of cold rolled sheets $20 a ton and also brought the price of blue sheets to $5 a ton, both effective on May 12. Follansbee makes the blue sheet for the stove trade.

price increase — Superior Steel Corp., Carnegie, Pa., has increased the price of 10 pct deoxidized copper-clad strip, effective May 22, as follows: Two sides, cold-rolled, from $24.25 to $24.95 per 100 lb; one side, from $20.00 to $20.35 per 100 lb; two sides, hot-rolled, from $21.00 to $21.70 per 100 lb; one side, from $16.50 to $16.85.

new currency— Cold-rolled sheets have become as negotiable as a U. S. greenback. In fact, many consumers now regard them as better than money in the bank. This tends to make them even tighter because consumers will order them whether they need them or not—with the sure knowledge that they can be traded for other scarce items or sold without loss and maybe at a tidy profit.

deferred—Orders for rail and accessory items for maintenance of railroad right-of-ways are being held back by lack of favorable operating revenues. One railroad has deferred ordering 150,000 tons of steel products it needs for track repair in the Midwest because it lacks money.

Steel Operations



District Operating Rates—Per Cent of Capacity

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	West	Ohio River	St. Louis	East	Aggregate
May 14	101.0	104.0	95.0*	86.0	97.0*	104.0	108.0	106.0	102.0	101.5	88.5	87.0	108.5	101.0*
May 21	102.5	105.6	94.5	86.0	97.0	104.0	109.5	104.0	104.0	99.5	92.0	91.0	112.0	101.5

* Revised.

Nonferrous Metals OUTLOOK

Market Activities

Copper price advanced to 20½¢ . . . Little increase in scrap volume . . . Trade looks for continued shortage of copper . . . Aluminum pig and ingot prices up

by John Anthony

New York—Price advances and metal shortages were the principal developments in the markets last week. The expected rise in the copper market was put into effect on Thursday when a producer raised the price 1¢ per lb. Followed the same day by some producers and smelters who had copper to sell, the remaining sellers had taken the action by Friday.

Ingot Brass Prices Up

This move had been anticipated so long in the trade that part of its effect on the scrap market had been lost. Dealers had already been paying higher prices in expectation of a rise, and refiners were reported to be willing to pay more than published prices for large lots. So the net advance in brass grades was ¼¢ to ½¢ per lb, and ¾¢ for copper. The higher prices have not been effective in bringing out additional tonnages of scrap.

During the week ingot makers raised the prices of brass and bronze ingots by ½¢ to 1¼¢ per lb. The advances were due to higher scrap costs and the raise in the copper market. Brass mills and wire and cable mills raised their prices following the copper market advance, the third advance in brass mill prices in a month.

Copper is in very short supply, and with the virtual selling out of producers' inventories there is no prospect of an improved position as long as demand continues as heavy as at present. The present outlook, with the price only 3¢ per lb below the long time peak price reached in 1948, would seem to offer the prospect of further price advances. The pressure on Congress for tariff suspension action is reported to be growing. Copper and brass products consumers are making extreme efforts to prevent resumption of the duty that would serve to increase the price of copper by 2¢ per lb.

Prices of aluminum pig and ingot were advanced ½¢ per lb last week by the Aluminum Co. of America with the forecast of higher prices for mill products in a short time. Reynolds and Kaiser followed the pig and ingot rise early this week.

Zinc Rise Seen

This development is expected to have some inflationary effect on the zinc market. Producers, even with supplies inadequate to meet the demands of the market, had been expected to hold the price at the 12¢ level to prevent encroachment by competitive materials. But with the higher prices of aluminum sheet and die castings, coupled with shortages of aluminum, there is a good prospect for higher prices for zinc.

Aluminum Co. of America announced early this week that new prices for aluminum sheet would be ½¢ higher. Prices on plate would be one cent up. Rods, screw machine stock and drawn wire were raised ½¢ per lb.

NONFERROUS METALS PRICES

	May 17	May 18	May 19	May 20	May 22	May 23
Copper, electro, Conn.	19.50	20.50	20.50	20.50	20.50	20.50
Copper, Lake, Conn.	19.625	19.625	20.625	20.625	20.625	20.625
Tin, Straits, New York	77.50	77.375	77.50	....	78.25	*78.50
Zinc, East St. Louis	12.00	12.00	12.00	12.00	12.00	12.00
Lead, St. Louis	11.80	11.80	11.80	11.80	11.80	11.80

Note: Quotations are going prices.
* Tentative.

MILL PRODUCTS

Aluminum

(Base prices, cents per pound, base 30,000 lb, f.o.b. shipping point, freight allowed)

Flat Sheet: 0.188 in., 2S, 3S, 26.9¢; 4S, 61S-O, 28.8¢; 52S, 30.9¢; 24S-O, 24S-OAL, 29.8¢; 75S-O, 75S-OAL, 36.3¢; 0.081 in., 2S, 3S, 27.9¢; 4S, 61S-O, 30.2¢; 52S, 32.3¢; 24S-O, 24S-OAL, 30.9¢; 75S-O, 75S-OAL, 38¢; 0.032 in., 2S, 3S, 29.5¢; 4S, 61S-O, 33.5¢; 52S, 36.2¢; 24S-O, 24S-OAL, 37.9¢; 75S-O, 75S-OAL, 47.6¢.

Plate: ¼ in., and heavier: 2S, 3S, F, 23.8¢ 4S-F, 26¢; 52S-F, 27.1¢; 61S-O, 26.6¢; 24S-F, 24S-FAL, 27.1¢; 75S-F, 75S-FAL, 33.9¢.

Extruded Solid Shapes: Shape factors 1 to 4, 35.6¢ to 64¢; 11 to 13, 34.6¢ to 76¢; 23 to 25, 36.7¢ to $1.05; 35 to 37, 44¢ to $1.53; 47 to 49, 63.5¢ to $2.20.

Rod, Rolled: 1.5 to 4.5 in., 2S-F, 3S-F. 34¢ to 30.5¢; Cold-finished, 0.375 to 3 in., 2S, 3S, 36.5¢ to 32¢.

Screw Machine Stock: Rounds, 11S-T3, R317-T4; ⅛ to 11/32 in., 49¢ to 38¢; ⅜ to 1½ in., 37.5¢ to 35.5¢; 1 9/16 to 3 in., 35.5¢ to 32.5¢; 17S-T4 lower by 1¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in.: 2S, 36¢ to 26.5¢; 52S, 44¢ to 32¢; 56S, 47¢ to 38.5¢; 17S-T4, 50¢ to 34.5¢; 61S-T4, 44.5¢ to 34¢; 75S-T-6, 76¢ to 55¢.

Extruded Tubing, Rounds: 63S-T5; OD in in.: 1¼ to 2, 33¢ to 48.5¢; 2 to 4, 30¢ to 40.8¢; 4 to 6, 30.5¢ to 37.3¢; 6 to 9, 31¢ to 39.8¢.

Roofing Sheet, Flat: 0.019 in. x 28 in. per sheet, 72 in., $1.045; 96 in., $1.393; 120 in., $1.742; 144 in., $2.090. Gage 0.024 in. x 28 in., 72 in., $1.271; 96 in., $1.695; 120 in., $2.116; 144 in., $2.540.

Coiled Sheet: 0.019 in. x 28 in., 25.7¢ per lb; 0.024 in. x 28 in., 24.7¢ per lb.

Magnesium

(Cents per lb, f.o.b. mill, freight allowed)

Sheets and Plate: Ma, FSa, ¼ in., 54¢-56¢; 0.188 in., 56¢-58¢; B & S gage 8, 58¢-60¢; 10, 59¢-61¢; 12, 63¢-65¢; 14, 69¢-74¢; 16, 76¢-81¢; 18, 84¢-89¢; 20, 96¢-$1.01; 22, $1.22-$1.31; 24, $1.62-$1.75. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, diam in., ¼ to 0.311, 58¢; ½ to ¾, 46¢; 1¼ to 1.749, 43¢; 2½ to 5, 41¢. Other alloys higher. Base: Up to ¾ in. diam., 10,000 lb; ¾ in. to 1¾ in., 20,000 lb; 1¾ in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangle: M, in weight per ft, for perimeters of less than size indicated, 0.10 to 0.11 lb per ft, per. up to 3.5 in., 55¢; 0.22 to 0.25 lb per ft, per. up to 5.9 in., 51¢; 0.50 to 0.59 lb per ft, per. up to 8.6 in., 47¢; 1.8 to 2.59 lb per ft, per. up to 19.5 in., 44¢; 4 to 6 lb per ft, per. up to 28 in., 43¢. Other alloys higher. Base, in weight per ft of shape: Up to ½ lb, 10,000 lb; ½ lb to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, wall thickness, outside diam. in., 0.049 to 0.057, ¼ to 5/16, $1.14; 5/16 to ⅜, $1.02; ½ to ⅝, 76¢; 1 to 2 in., 65¢; 0.065 to 0.082, ⅜ to 7/16, 85¢; ⅝ to ¾, 62¢; 1 to 2 in., 57¢; 0.165 to 0.219, ⅞ to ⅞, 54.5¢; 1 to 2 in., 53¢; 3 to 4 in., 49¢. Other alloys higher. Base, OD in in.: Up to 1½ in., 10,000 lb; 1½ in. to 3 in., 20,000 lb; 3 in. and larger, 30,000 lb.

Nickel and Monel

(Base prices, cents per lb, f.o.b. mill)

	Nickel	Monel
Sheets, cold-rolled	60	47
Strip, cold-rolled	66	50
Rods and bars	56	45
Angles, hot-rolled	56	45
Plates	58	46
Seamless tubes	89	80
Shot and blocks	..	40

Copper, Brass, Bronze

(Cents per lb, freight prepaid on 200 lb)

	Sheets	Rods	Extruded Shapes
Copper	35.43	...	35.03
Copper, h-r	....	31.28	....
Copper, drawn	....	32.53	....
Low brass	33.42	33.11	....
Yellow brass	32.03	31.72	....
Red brass	33.89	33.58	....
Naval brass	36.71	30.77	32.03
Leaded brass	....	26.43	30.49
Com'l bronze	34.88	34.57	....
Manganese bronze	40.21	34.10	35.66
Phosphor bronze	53.17	53.42	....
Muntz metal	34.93	30.49	31.74
Everdur, Herculoy, Olympic, etc.	40.14	39.08	....
Nickel silver 10 pct	42.77	46.63	49.71
Arch. bronze	....	....	30.49

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed	17.50
Aluminum pig	16.50
Antimony, American, Laredo, Tex.	24.50
Beryllium copper, 3.75-4.25% Be dollars per lb contained Be	$24.50
Beryllium aluminum 5% Be, dollars per lb contained Be	$56.00
Bismuth, ton lots	$2.00
Cadmium, del'd	$2.00
Cobalt, 97-99% (per lb)	$1.80 to $1.87
Copper, electro, Conn. Valley	20.50
Copper, Lake, Conn. Valley	20.625
Gold, U. S. Treas., dollars per oz.	$35.00
Indium, 99.8%, dollars per troy oz.	$2.25
Iridium, dollars per troy oz.	$100 to $110
Lead, St. Louis	11.80
Lead, New York	12.00
Magnesium, 99.8+%, f.o.b. Freeport Tex., 10,000 lb	20.50
Magnesium, sticks, 100 to 500 lb	36¢ to 38¢
Mercury, dollars per 76-lb flask f.o.b. New York	$70 to $73
Nickel, electro, f.o.b. New York	42.97
Nickel oxide sinter, f.o.b. Copper Cliff, Ont., contained nickel	36.25
Palladium, dollars per troy oz.	$24.00
Platinum, dollars per troy oz.	$66 to $69
Silver, New York, cents per oz.	72.75
Tin, New York	78.50
Zinc, East St. Louis	12.00
Zinc, New York	12.72
Zirconium copper, 50 pct	$6.20

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot	
No. 115	19.00-19.25
No. 120	18.50-18.75
No. 123	18.00-18.25
80-10-10 ingot	
No. 305	22.75
No. 315	20.75
88-10-2 ingot	
No. 210	28.75
No. 215	26.25
No. 245	21.00-22.00
Yellow ingot	
No. 405	16.25-17.00
Manganese bronze	
No. 421	21.25

Aluminum Ingot

(Cents per lb, of 30,000 lb)

95-5 aluminum-silicon alloys	
0.30 copper, max.	18.75-19.25
0.60 copper, max.	18.50-19.00
Piston alloys (No. 122 type)	17.50-18.00
No. 12 alum. (No. 2 grade)	17.00-17.50
108 alloy	17.25-17.75
195 alloy	18.25-18.75
13 alloy	18.75-19.25
AXS-679	17.50-18.00

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97½%	18.00-18.50
Grade 2—92-95%	17.00-17.50
Grade 3—90-92%	16.00-16.50
Grade 4—85-90%	15.50-16.00

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, in 500 lb lots)

Copper	
Cast, oval, 15 in. or longer	36⅛
Electrodeposited	30¾
Rolled, oval, straight, delivered	34.34
Forged ball anodes	35
Brass, 80-20	
Cast, oval, 15 in. or longer	31¾
Zinc, oval, 99.886, f.o.b. Detroit	17¼
Ball anodes	16¼
Nickel 99 pct plus	
Cast	59.00
Rolled, depolarized	60.00
Cadmium	$2.15
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	79½

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum	49¼
Copper sulfate, 99.5 crystals, bbl.	10¾
Nickel salts, single or double, 4-100 lb bags, frt allowed	18.00
Nickel chloride, 300 lb bbl	24.50
Silver cyanide, 100 oz lots, per oz	61¼
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc sulfate, 89 pct granular	7.15
Zinc cyanide, 100 lb drums	41¼

SCRAP METALS

Brass Mill Scrap

(Cents per pound; add ½¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turnings
Copper	17½	16¾
Yellow brass	14⅞	13⅞
Red brass	16	15¼
Commercial bronze	16⅜	15⅝
Manganese bronze	13⅞	13
Leaded brass rod ends	14⅜	....

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	17.25
No. 2 copper wire	16.25
Light copper	15.25
Refinery brass	16.00*
Radiators	11.25

*Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper wire	17.25
No. 2 copper wire	16.25
Light copper	15.25
No. 1 composition	14.25
No. 1 comp turnings	13.75
Rolled brass	12.00
Brass pipe	13.25
Radiators	11.25
Heavy yellow brass	11.00-11.25
Aluminum	
Mixed old cast	10.00-10.25
Mixed old clips	10.75-11.00
Mixed turnings, dry	10.00-10.25
Pots and pans	10.00-10.25
Low copper	11.75-12.00

Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	15¾—16
No. 2 heavy copper and wire	14¾—15
Light copper	13¾—14
Auto radiators (unsweated)	10 —10¼
No. 1 composition	12¾—13
No. 1 composition turnings	12¼—12½
Clean red car boxes	10¾—11
Cocks and faucets	10¾—11
Mixed heavy yellow brass	8¾— 9
Old rolled brass	10 —10¼
Brass pipe	11¼—11½
New soft brass clippings	12¾—13
Brass rod ends	11¼—11½
No. 1 brass rod turnings	11 —11¼

Aluminum

Alum. pistons and struts	5½— 6
Aluminum crankcases	8 — 8½
2S aluminum clippings	11 —11½
Old sheet and utensils	8 — 8½
Borings and turnings	5
Misc. cast aluminum	8 — 8½
Dural clips (24S)	8 — 8½

Zinc

New zinc clippings	8¼— 8½
Old zinc	6 — 6½
Zinc routings	4 — 4½
Old die cast scrap	4½— 4¾

Nickel and Monel

Pure nickel clippings	24 —25
Clean nickel turnings	18 —19
Nickel anodes	24 —25
Nickel rod ends	23 —24
New Monel clippings	14 —15
Clean Monel turnings	8 — 9
Old sheet Monel	11½—12½
Old Monel castings	9 —10
Inconel clippings	13 —15
Nickel silver clippings, mixed	9 —10
Nickel silver turnings, mixed	6 — 7

Lead

Soft scrap, lead	9½— 9¾
Battery plates (dry)	5 — 5¼

Magnesium

Segregated solids	9 —10
Castings	5½— 6½

Miscellaneous

Block tin	60 —62
No. 1 pewter	41 —43
No. 1 auto babbitt	37 —39
Mixed common babbitt	9½— 9¾
Solder joints	12½—13
Siphon tops	37 —39
Small foundry type	13 —13½
Monotype	11½—12
Lino. and stereotype	11 —11½
Electrotype	9¼— 9½
New type shell cuttings	13 —13¼
Hand picked type shells	6½— 7
Lino. and stereo. dross	4¼— 4¾
Electro. dross	2¾— 3

MARKETS—PRICES—TRENDS

SCRAP
Iron & Steel

Conversion Deals Add Zip to Market Boom

With a $40.00 market "just around the corner" in Pittsburgh, steelmaking scrap prices were boiling as perhaps they never had before in history. Not that the levels of 1948 have yet been reached. But few in the industry today will bet much that '48 levels can be avoided—or close to them.

Advances in No. 1 heavy melting steel amounted to $2.00 a gross ton in Pittsburgh, Cleveland, Youngstown, Buffalo and Detroit. In New York, brokers were paying $2.50 a ton more than they did at the beginning of last week.

High level steel operations—chewing up more scrap per week in most mills than ever before in history—were partly responsible. But observers believe that the frenzied aspect of the market can be blamed primarily on conversion deals.

PITTSBURGH—A $40 market for No. 1 heavy melting scrap is just around the corner. Perhaps it's already here. The last known mill purchase established a price of $39, an advance of $2. Observers see no immediate prospect of a softening in the upward pressure. A tight situation is foreseen at least through June. High level steel operations, plus conversion deals are responsible. The market has reached the point where brokers hesitate to take a substantial order for fear of being on the short end in trying to fill it.

CHICAGO—Mills in the Chicago area came into the market for No. 1 heavy melting steel at $35 per gross ton and No. 2 heavy melting at $33 per gross ton. It is not expected that the $35 price for No. 1 heavy melting will hold through the week as it may go as high as $36. The demand for turnings has become more active with machine shop turnings increased from a top of $22 last week to $23.50 per gross ton.

PHILADELPHIA—The market advanced last week due to the need for covering on old orders. Steel grades were up by $1 a ton. Low phos grades were up by $1 to $1.50. Turnings were up 50¢ to $1. Rail specialties were up $1, and rail crops were up $2 on buying by rerollers. The market was very strong and is feeling the pressure of Pittsburgh prices. The cast market is still being held down by the offerings of foreign pig, but machinery and malleable are up $1.

NEW YORK—No. 1 steel was up another $2.50 a ton early this week. Other steelmaking grades were also stronger. No. 2 heavy melting steel was higher by $1.50 and No. 2 bundles were up $1. Machine shop and mixed turnings were 50¢ higher, along with shoveling turnings. Cast is dull. One reason for the terrific advances here is a 50,000-ton conversion deal for an auto company; melting is in eastern Pennsylvania.

DETROIT—The upward spiraling of scrap prices is continuing here. This week a number of industrial lists are closing that are expected to confirm the prices commanded recently for small tonnages. Confirmed reports here this week that several of the steel companies are requiring that scrap be returned to the mills has brought about wide speculation that the industry may again be headed for: (1) Smaller volume of free scrap; (2) a wild scramble for available free scrap; (3) wildly soaring yard prices; and (4) price concessions by scrap sellers to steel mills.

CLEVELAND—To buy or not to buy, and who's got the No. 1 are the questions of the moment here and in the Valley in a scrap market loaded with dynamite. On the surface, the market is greatly oversold at any price, which has mill buyers wondering if sitting tight isn't the better part of valor. Mills are owed plenty of tonnage at $34 and early this week it was reliably estimated that Valley consumers are owed 250,000 tons at $35 and under. If some of this tonnage would come in, it would reduce the heat on the market. No. 1 is carrying No. 2 steel along, but the spread is widening.

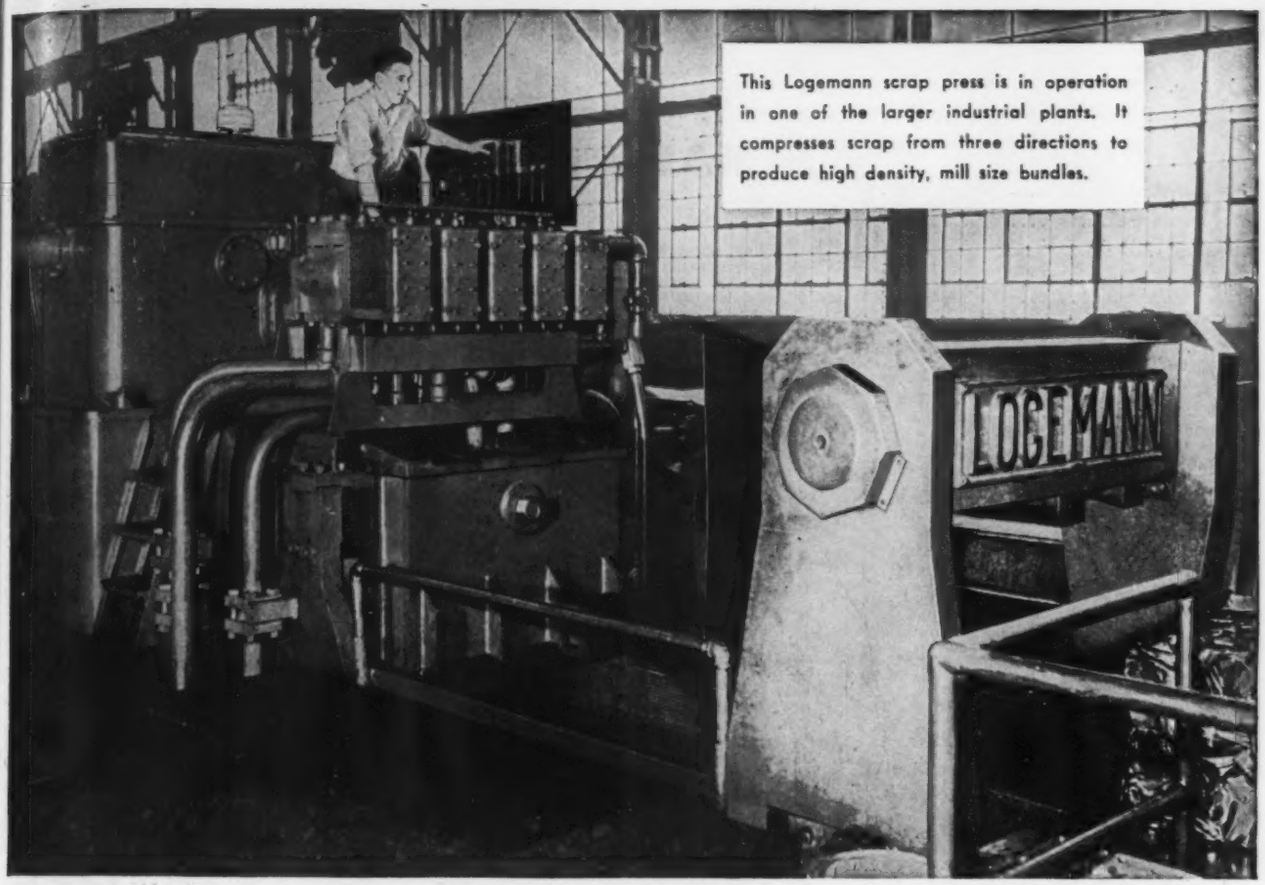
ST. LOUIS—A combination of short covering by dealers and a small amount of buying by the steel mills shoved melting grades up another $1 a ton in the St. Louis industrial district. Better business by foundries caused heavier buying of these grades to advance prices.

CINCINNATI—In a market as hot as a firecracker, prices of some heavy melting grades advanced $1.50 to $2 a ton, based on purchases of representative tonnages by major district consumers. Further advances are indicated as other consumers come into the market early next week for their June requirements. Turnings are temporarily without a home here, but movement out of this district is gaining momentum. Foundry material is fairly active.

BOSTON—There was plenty of action in a sizzling market here during the past week. All steelmaking grades advanced. Blast furnace material was firm; mixed borings and turnings and machine shop turnings did not move but the spread narrowed on shoveling turnings. No. 1 steel was up $1.50, and other steel grades were $1 a ton higher.

BIRMINGHAM—The market here is very strong generally but movement is slow as buyers attempt to resist higher prices. There are unconfirmed but apparently correct reports that No. 2 heavy melting steel and No. 2 bundles have been purchased in Florida for export early in June.

BUFFALO—Led by No. 1 heavy melting, prices on steelmaking grades of scrap advanced $1 to $2 a ton here. Increases were based on material being bought in the local area for shipment to other producing centers where considerably higher prices are being paid. Dealers said consumers would have to pay more than the advanced prices to obtain any new large-tonnage orders at the present. Bidding, however, was still nil. Meanwhile dealers continue to suffer heavy losses on coverage of old commitments.



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Iron and Steel

SCRAP PRICES

Going prices as obtained in the trade by THE IRON AGE, based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	$38.50 to $39.00
No. 2 hvy. melting	33.50 to 34.00
No. 1 bundles	38.50 to 39.00
No. 2 bundles	29.50 to 30.00
Machine shop turn.	27.50 to 28.00
Moxed bor. and ms. turns.	27.50 to 28.00
Shoveling turnings	30.00 to 30.50
Cast iron borings	28.00 to 28.50
Low phos. plate	41.00 to 41.50
Heavy turnings	35.00 to 36.00
No. 1 RR. hvy. melting	40.00 to 40.50
Scrap rails, random lgth.	41.00 to 41.50
Rails 2 ft and under	43.50 to 44.00
RR. steel wheels	41.00 to 41.50
RR. spring steel	41.00 to 41.50
RR. couplers and knuckles	41.00 to 41.50
No. 1 machinery cast	41.50 to 42.50
Mixed yard cast.	36.50 to 37.00
Heavy breakable cast.	34.00 to 35.00
Malleable	38.00 to 39.00

Chicago

No. 1 hvy. melting	$34.50 to $35.00
No. 2 hvy. melting	32.00 to 33.00
No. 1 factory bundles	34.00 to 35.00
No. 1 dealers' bundles	34.00 to 35.00
No. 2 dealers' bundles	30.00 to 31.00
Machine shop turn.	22.50 to 23.50
Mixed bor. and turn.	21.50 to 22.50
Shoveling turnings	24.00 to 25.00
Cast iron borings	23.00 to 24.00
Low phos. forge crops	39.00 to 40.00
Low phos. plate	38.00 to 39.00
No. 1 RR. hvy. melting	38.00 to 39.00
Scrap rails, random lgth.	42.00 to 43.00
Rerolling rails	50.00 to 51.00
Rails 2 ft and under	48.00 to 49.00
Locomotive tires, cut	44.00 to 45.00
Cut bolsters & side frames	40.00 to 41.00
Angles and splice bars	43.00 to 44.00
RR. steel car axles	52.00 to 53.00
RR. couples and knuckles	41.00 to 42.00
No. 1 machinery cast.	47.00 to 48.00
No. 1 agricul. cast.	44.00 to 45.00
Heavy breakable cast.	37.00 to 38.00
RR. grate bars	37.00 to 38.00
Cast iron brake shoes	37.00 to 38.00
Cast iron car wheels	39.00 to 40.00
Malleable	44.00 to 45.00

Philadelphia

No. 1 hvy. melting	$28.50 to $29.50
No. 2 hvy. melting	26.50 to 27.50
No. 1 bundles	28.50 to 29.50
No. 2 bundles	23.00 to 24.00
Machine shop turn.	19.50 to 20.00
Mixed bor. and turn.	18.00 to 19.00
Shoveling turnings	21.00 to 22.00
Low phos. punchings, plate	32.50 to 33.00
Low phos. 5 ft and under	32.50 to 33.00
Low phos. bundles	28.50 to 29.50
Hvy. axle forge turn.	28.50 to 29.50
Clean cast chem. borings	29.00 to 30.00
RR. steel wheels	35.00 to 36.00
RR. spring steel	35.00 to 36.00
Rails 18 in. and under	43.00 to 44.00
No. 1 machinery cast	38.00 to 39.00
Mixed yard cast	33.00 to 34.00
Heavy breakable cast	35.00 to 36.00
Cast iron carwheels	39.00 to 40.00
Malleable	42.00 to 43.00

Cleveland

No. 1 hvy. melting	$35.00 to $35.50
No. 2 hvy. melting	30.00 to 30.50
No. 1 busheling	35.00 to 35.50
No. 1 bundles	35.00 to 35.50
No. 2 bundles	27.00 to 27.50
Machine shop turn.	21.50 to 22.00
Mixed bor. and turn.	26.00 to 26.50
Shoveling turnings	26.00 to 26.50
Cast iron borings	26.00 to 26.50
Low phos. 2 ft and under	36.00 to 36.50
Steel axle turn.	33.00 to 33.50
Drop forge flashings	35.00 to 35.50
No. 1 RR. hvy. melting	38.00 to 38.50
Rails 3 ft and under	46.00 to 47.00
Rails 18 in. and under	47.00 to 48.00
No. 1 machinery cast.	47.00 to 48.00
RR. cast.	47.00 to 48.00
RR. grate bars	34.00 to 35.00
Stove plate	38.00 to 39.00
Malleable	44.00 to 45.00

Youngstown

No. 1 hvy. melting	$38.50 to $39.00
No. 2 hvy. melting	33.50 to 34.00
No. 1 bundles	38.50 to 39.00
No. 2 bundles	30.50 to 31.00
Machine shop turn.	27.50 to 28.00
Shoveling turnings	29.50 to 30.00
Cast iron borings	29.50 to 30.00
Low phos. plate	39.50 to 40.00

Buffalo

No. 1 hvy. melting	$33.50 to $34.00
No. 2 hvy. melting	30.50 to 31.00
No. 1 busheling	30.50 to 31.00
No. 1 bundles	31.50 to 32.00
No. 2 bundles	29.50 to 30.00
Machine shop turn.	23.00 to 23.50
Mixed bor. and turn.	25.00 to 26.00
Shoveling turnings	26.00 to 26.50
Cast iron borings	25.50 to 26.00
Low phos. plate	32.50 to 33.00
Scrap rails, random lgth.	33.50 to 34.00
Rails 2 ft and under	38.50 to 39.00
RR. steel wheels	33.50 to 36.00
RR. spring steel	33.50 to 36.00
RR. couplers and knuckles	33.50 to 36.00
No. 1 machinery cast.	38.00 to 38.50
No. 1 cupola cast.	36.00 to 36.50
Stove plate	34.00 to 34.50
Small indus. malleable	30.00 to 30.50

Birmingham

No. 1 hvy. melting	$27.50 to $28.50
No. 2 hvy. melting	25.50 to 26.00
No. 2 bundles	23.50 to 24.00
No. 1 busheling	27.50 to 28.50
Machine shop turn.	22.00 to 22.50
Shoveling turnings	23.50 to 24.00
Cast iron borings	20.00 to 20.50
Bar crops and plate	32.50 to 33.00
Structural and plate	32.50 to 33.00
No. 1 RR. hvy. melt.	31.50 to 32.00
Scrap rails, random lgth.	35.50 to 36.00
Rerolling rails	41.50 to 42.00
Rails 2 ft and under	37.50 to 38.00
Angles & splice bars	37.00 to 38.00
Std. steel axles	32.00 to 33.00
No. 1 cupola cast.	35.00 to 36.00
Stove plate	30.50 to 31.50
Cast iron carwheels	30.00 to 31.00

St. Louis

No. 1 hvy. melting	$33.00 to $34.00
No. 2 hvy. melting	29.00 to 30.00
No. 2 bundled sheets	28.00 to 29.00
Machine shop turn.	19.00 to 20.00
Shoveling turnings	22.00 to 23.00
Rails, random lengths	38.00 to 40.00
Rails 3 ft and under	42.00 to 43.00
Locomotive tires, uncut	37.00 to 38.00
Angles and splice bars	40.00 to 41.00
Std. steel car axles	48.00 to 49.00
RR. spring steel	40.00 to 41.00
No. 1 machinery cast.	39.00 to 41.00
Hvy. breakable cast.	33.00 to 35.00
Cast iron brake shoes	33.00 to 35.00
Stove plate	33.00 to 34.00
Cast iron car wheels	38.00 to 39.00
Malleable	38.00 to 40.00

New York

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$29.50 to $30.00
No. 2 hvy. melting	23.50 to 24.00
No. 2 bundles	21.50 to 22.00
Machine shop turn.	16.00 to 16.50
Mixed bor. and turn.	16.00 to 16.50
Shoveling turnings	18.00 to 18.50
Clean cast chem. bor.	23.00 to 24.00
No. 1 machinery cast.	30.00 to 30.50
Mixed yard cast.	28.00 to 28.50
Charging box cast.	29.00 to 30.00
Heavy breakable cast.	29.00 to 30.00
Unstrp. motor blocks	21.00 to 21.50

Boston

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$26.50 to $27.00
No. 2 hvy. melting	22.00 to 22.50
No. 1 bundles	26.50 to 27.00
No. 2 bundles	$20.50 to $21.00
Machine shop turn.	15.00 to 15.50
Mixed bor. and turn.	15.00 to 15.50
Shoveling turnings	17.00 to 17.50
No. 1 busheling	24.00 to 24.50
Clean cast chem. borings	19.50 to 20.00
No. 1 machinery cast.	30.00 to 31.00
No. 2 machinery cast.	26.50 to 27.00
Heavy breakable cast.	25.00 to 26.00
Stove plate	25.00 to 26.00

Detroit

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$31.50 to $32.00
No. 2 hvy. melting	28.00 to 28.50
No. 1 bundles	36.00 to 36.50
New busheling	34.00 to 34.50
Flashings	31.50 to 32.00
Machine shop turn.	20.00 to 20.50
Mixed bor. and turn.	20.00 to 20.50
Shoveling turnings	23.00 to 23.50
Cast iron borings	23.00 to 23.50
Low phos. plate	35.00 to 35.50
No. 1 cupola cast.	40.00 to 41.00
Heavy breakable cast.	32.00 to 33.00
Stove plate	35.00 to 36.00
Automotive cast.	44.00 to 45.00

Cincinnati

Per gross ton, f.o.b. cars:

No. 1 hvy. melting	$33.00 to $33.50
No. 2 hvy. melting	28.50 to 29.00
No. 1 bundles	33.00 to 33.50
No. 2 bundles, black	27.50 to 28.00
No. 2 bundles, mixed	23.50 to 24.00
Machine shop turn.	17.50 to 18.00
Mixed bor. and turn.	19.50 to 20.00
Shoveling turnings	20.50 to 21.00
Cast iron borings	20.50 to 21.00
Low phos. 18 in. under	39.50 to 40.00
Rails, random lengths	39.00 to 40.00
Rails, 18 in. and under	47.50 to 48.50
No. 1 cupola cast.	44.00 to 45.00
Hvy. breakable cast.	37.50 to 38.50
Drop broken cast.	45.50 to 46.50

San Francisco

No. 1 hvy. melting	$20.00
No. 2 hvy. melting	18.00
No. 1 bundles	16.00
No. 2 bundles	16.00
No. 3 bundles	13.00
Machine shop turn.	9.00
Elec. fur. 1 ft and under	28.00
No. 1 RR. hvy. melting	20.00
Scrap rails, random lgth.	20.00
No. 1 cupola cast.	$32.00 to 33.50

Los Angeles

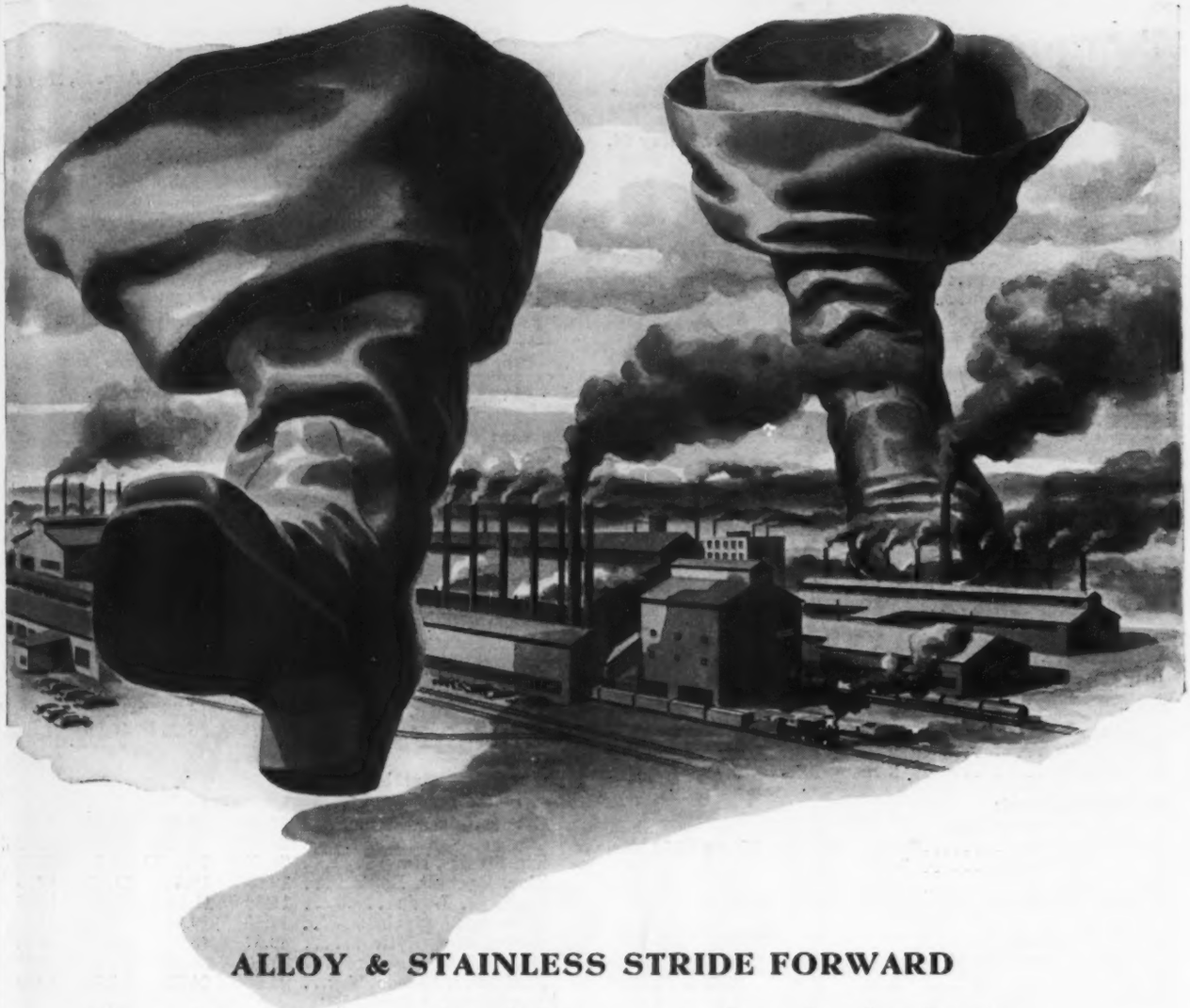
No. 1 hvy. melting	$20.00
No. 2 hvy. melting	18.00
No. 1 bundles	16.00
No. 2 bundles	16.00
No. 3 bundles	13.00
Mach. shop turn.	5.00
Elec. fur. 1 ft and under	30.00
No. 1 RR. hvy. melting	20.00
No. 1 cupola cast.	$37.00 to 39.00

Seattle

No. 1 hvy. melting	$18.00
No. 2 hvy. melting	18.00
No. 1 bundles	16.00
No. 2 bundles	16.00
No. 3 bundles	12.00
Elec. fur. 1 ft and under	$29.00 to 30.00
RR. hvy. melting	19.00
No. 1 cupola cast.	30.00 to 35.00
Heavy breakable cast.	20.00

Hamilton, Ont.

No. 1 hvy. melting	$27.00
No. 1 bundles	19.00
No. 2 bundles	19.00
Mechanical bundles	25.00
Mixed steel scrap	23.00
Mixed bor. and turn.	20.00
Rails, remelting	27.00
Rails, rerolling	30.00
Bushelings	21.50
Bush., new fact, prep'd.	25.00
Bush., new fact, unprep'd.	20.00
Short steel turnings	20.00
Cast scrap	40.00



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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Comparison of Prices

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel: (cents per pound)	May 23, 1950	May 16, 1950	Apr. 25, 1950	May 24, 1949
Hot-rolled sheets	3.35	3.35	3.35	3.25
Cold-rolled sheets	4.10	4.10	4.10	4.00
Galvanized sheets (10 ga)	4.40	4.40	4.40	4.40
Hot-rolled strip	3.25	3.25	3.25	3.25
Cold-rolled strip	4.21	4.21	4.21	4.038
Plates	3.50	3.50	3.50	3.40
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R strip (No. 302)	33.00	33.00	33.00	33.00
Tin and Terneplate: (dollars per base box)				
Tinplate (1.50 lb) cokes	$7.50	$7.50	$7.50	$7.75
Tinplate, electro (0.50 lb)	6.60	6.60	6.60	6.70
Special coated mfg. ternes	6.35	6.35	6.50	6.65
Bars and Shapes: (cents per pound)				
Merchant bars	3.45	3.45	3.45	3.35
Cold-finished bars	4.145	4.145	4.145	3.995
Alloy bars	3.95	3.95	3.95	3.75
Structural shapes	3.40	3.40	3.40	3.25
Stainless bars (No. 302)	28.50	28.50	28.50	28.50
Wrought iron bars	9.50	9.50	9.50	9.50
Wire: (cents per pound)				
Bright wire	4.50	4.50	4.50	4.15
Rails: dollars per 100 lb)				
Heavy rails	$3.40	$3.40	$3.40	$3.20
Light rails	3.75	3.75	3.75	3.55
Semifinished Steel: (dollars per net ton)				
Rerolling billets	$54.00	$54.00	$54.00	$52.00
Slabs, rerolling	54.00	54.00	54.00	52.00
Forging billets	63.00	63.00	63.00	61.00
Alloy blooms, billets, slabs	66.00	66.00	66.00	63.00
Wire Rod and Skelp: (cents per pound)				
Wire rods	3.85	3.85	3.85	3.40
Skelp	3.15	3.15	3.15	3.25

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

Pig Iron: (per gross ton)	May 23, 1950	May 16, 1950	Apr. 25, 1950	May 24, 1949
No. 2, foundry, Phila.	$50.42	$50.42	$50.42	$50.56
No. 2, Valley furnace	46.50	46.50	46.50	46.50
No. 2, Southern Cin'ti	49.08	49.08	49.08	45.47
No. 2, Birmingham	42.38	42.38	42.38	39.38
No. 2, foundry, Chicago†	46.50	46.50	46.50	46.50
Basic del'd Philadelphia	49.92	49.92	49.92	49.74
Basic, Valley furnace	46.00	46.00	46.00	46.00
Malleable, Chicago†	46.50	46.50	46.50	46.50
Malleable, Valley	46.50	46.50	46.50	46.50
Charcoal, Chicago	68.56	68.56	68.56	73.78
Ferromanganese‡	173.40	173.40	173.40	173.40

†The switching charge for delivery to foundries in the Chicago district is $1 per ton.
‡Average of U. S. prices quoted on Ferroalloy page.

Scrap: (per gross ton)				
Heavy melt'g steel, P'gh.	$38.75	$36.75	$33.75	$22.75
Heavy melt'g steel, Phila.	29.00	28.00	25.50	22.00
Heavy melt'g steel, Ch'go	34.75	32.50	29.50	21.50
No. 1 hy. com. sh't, Det.	36.25	34.75	30.25	16.75
Low phos. Young'n	39.75	37.75	35.75	24.75
No. 1, cast, Pittsburgh	42.00	42.00	40.50	27.75
No. 1, cast, Philadelphia	38.50	37.50	37.50	28.00
No. 1, cast, Chicago	47.50	45.50	42.50	27.00
Coke: Connellsville: (per net ton at oven)				
Furnace coke, prompt	$14.25	$14.25	$14.25	$14.25
Foundry coke, prompt	16.25	16.25	16.25	16.25
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electro, Conn.	20.50	19.50	19.50	18.00
Copper, Lake Conn.	20.625	19.625	19.625	18.625
Tin Straits, New York	78.50†	77.375*	76.50	$1.03
Zinc, East St. Louis	12.00	12.00	11.00	12.00
Lead, St. Louis	11.80	11.80	10.55	12.85
Aluminum, virgin	17.50	17.00	17.00	17.00
Nickel electrolytic	42.97	42.97	42.97	42.93
Magnesium, ingot	20.50	20.50	20.50	20.50
Antimony, Laredo, Tex.	24.50	24.50	24.50	38.50

† Tentative. * Revised.

Composite Prices

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 139 of May 12, 1949, issue.)

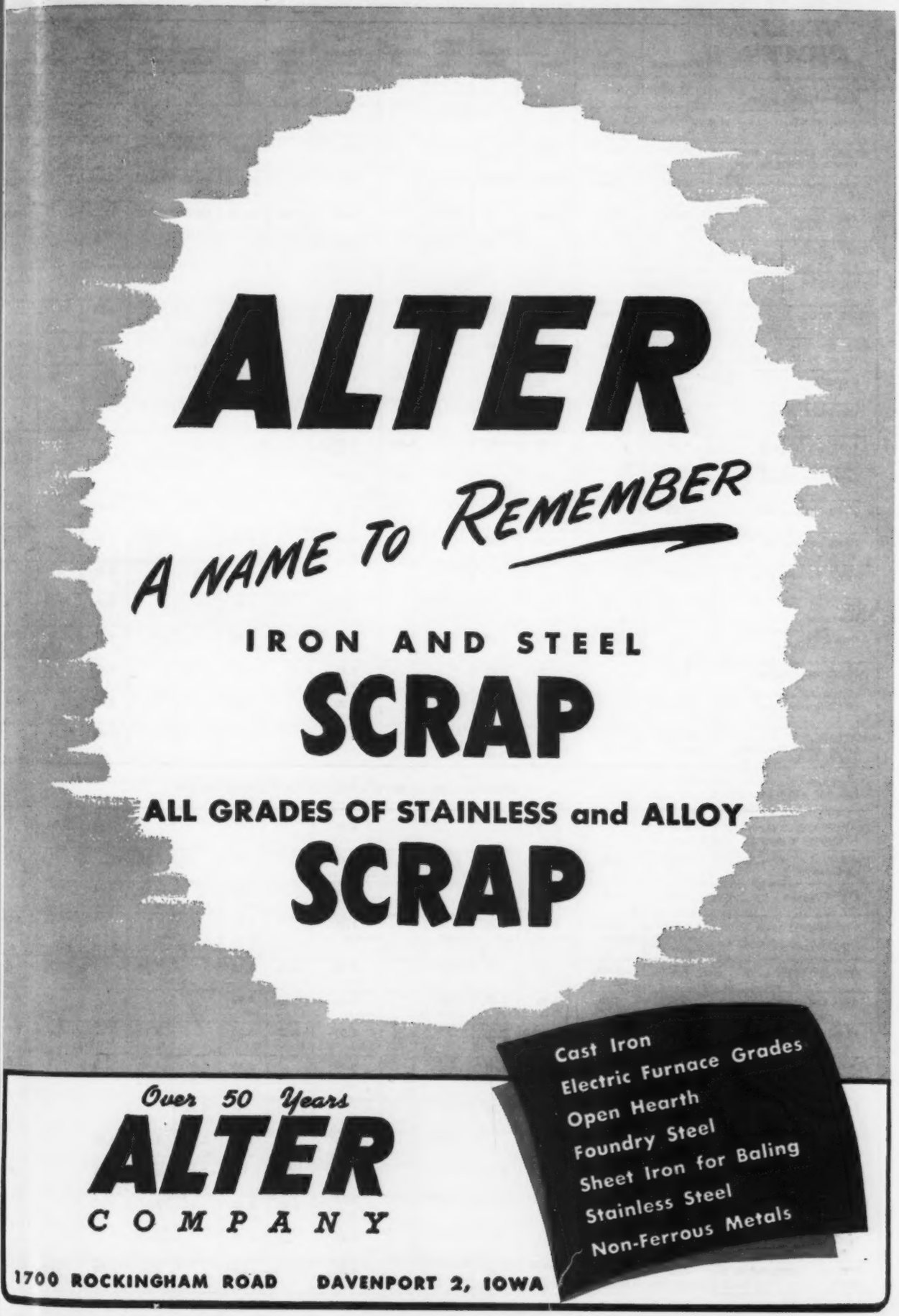
	Finished Steel Base Price	Pig Iron	Scrap Steel
May 23, 1950	3.837¢ per lb.	$46.38 per gross ton	$34.17 per gross ton
One week ago	3.837¢ per lb.	46.38 per gross ton	32.42 per gross ton
One month ago	3.837¢ per lb.	46.38 per gross ton	29.58 per gross ton
One year ago	3.705¢ per lb.	45.91 per gross ton	22.08 per gross ton

	Finished Steel High	Finished Steel Low	Pig Iron High	Pig Iron Low	Scrap Steel High	Scrap Steel Low
1950	3.837¢ Jan. 3	3.837¢ Jan. 3	$46.38 Feb. 7	$45.88 Jan. 3	$34.17 May 23	$26.25 Jan. 3
1949	3.837¢ Dec. 27	3.3705¢ May 3	46.87 Jan. 18	45.88 Sept. 6	43.00 Jan. 4	19.33 June 28
1948	3.721¢ July 27	3.193¢ Jan. 1	46.91 Oct. 12	39.58 Jan. 6	43.16 July 27	39.75 Mar. 9
1947	3.193¢ July 29	2.848¢ Jan. 1	37.98 Dec. 30	30.14 Jan. 7	42.58 Oct. 28	29.50 May 20
1946	2.848¢ Dec. 31	2.464¢ Jan. 1	30.14 Dec. 10	25.37 Jan. 1	31.17 Dec. 24	19.17 Jan. 1
1945	2.464¢ May 29	2.396c Jan. 1	25.37 Oct. 23	23.61 Jan. 2	19.17 Jan. 2	18.92 May 22
1944	2.396¢	2.396¢	$23.61	$23.61	19.17 Jan. 11	15.76 Oct. 24
1943	2.396¢	2.396¢	23.61	23.61	$19.17	$19.17
1942	2.396¢	2.396¢	23.61	23.61	19.17	19.17
1941	2.396¢	2.396¢	$23.61 Mar. 20	$23.45 Jan. 2	$22.00 Jan. 7	$19.17 Apr. 10
1940	2.30467¢ Jan. 2	2.24107¢ Apr. 16	23.45 Dec. 23	22.61 Jan. 2	21.83 Dec. 30	16.04 Apr. 9
1939	2.35367¢ Jan. 3	2.26689¢ May 16	22.61 Sept. 19	20.61 Sept. 12	22.50 Oct. 3	14.08 May 16
1938	2.58414¢ Jan. 4	2.27207¢ Oct. 18	23.25 June 21	19.61 July 6	15.00 Nov. 22	11.00 June 7
1937	2.58414¢ Mar. 9	2.32263¢ Jan. 4	23.25 Mar. 9	20.25 Feb. 16	21.92 Mar. 30	12.67 June 9
1936	2.32263¢ Dec. 28	2.05200¢ Mar. 10	19.74 Nov. 24	18.73 Aug. 11	17.75 Dec. 21	12.67 June 8
1935	2.07642¢ Oct. 1	2.06492¢ Jan. 8	18.84 Nov. 5	17.83 May 14	13.42 Dec. 10	10.33 Apr. 29
1932	1.89196¢ July 5	1.83910¢ Mar. 1	14.81 Jan. 5	13.56 Dec. 6	8.50 Jan. 12	6.43 July 5
1929	2.31773¢ May 28	2.26498¢ Oct. 29	18.71 May 14	18.21 Dec. 17	17.58 Jan. 29	14.08 Dec. 8

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strip, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Based on averages for basic iron at Valley furnaces and foundry iron as Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.


ALTER
A NAME TO REMEMBER
IRON AND STEEL
SCRAP
ALL GRADES OF STAINLESS and ALLOY
SCRAP
Cast Iron
Electric Furnace Grades
Open Hearth
Foundry Steel
Sheet Iron for Baling
Stainless Steel
Non-Ferrous Metals
Over 50 Years
ALTER
COMPANY
1700 ROCKINGHAM ROAD DAVENPORT 2, IOWA

STEEL PRICES

Smaller numbers in price boxes indicate producing companies. For main office locations, see key on facing page.
Base prices at producing points apply only to sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply

	Pittsburgh	Chicago	Gary	Cleveland	Canton Massillon	Middletown	Youngstown	Bethlehem	Buffalo	Conshohocken	Johnstown	Sparrows Point	Granite City	Detroit
INGOTS Carbon forging, net ton	$50.00 1													$50.00 31
Alloy, net ton	$51.00 1.17													$51.00 31
BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton	$53.00 1	$53.00 1	$53.00 1				$57.00 13		$53.00 3	$58.00 26	$53.00 3			
Carbon forging billets, net ton	$63.00 1	$63.00 1.4	$63.00 1.3	$63.00 4			$63.00 25		$63.00 3.4	$65.00 26	$63.00 3			$63.00 31
Alloy, net ton	$66.00 1.17	$66.00 1.4	$66.00 1		$66.00 4.42		$66.00 13	$66.00 3	$66.00 3.4	$68.00 26	$66.00 3			$66.00 31
SHEET BARS							$57.00 13							
PIPE SKELP	3.15 1						3.15 1.4							
WIRE RODS	3.85 2.18	3.85 2.4.33	3.85 6	3.85 2			3.85 6				3.85 3	3.95 3		
SHEETS Hot-rolled (18 ga. & hvr.)	3.35 1.5.9.15	3.35 23	3.35 1.6.8	3.35 4.5			3.35 1.4.6.13		3.35 3	3.45 26		3.35 5		3.55 13
Cold-rolled 4.10	1.5.7.9.15 5.10[63]		4.10 1.6.8	4.10 4.15		4.10 7	4.10 4.6		4.10 3			4.10 3	4.30 22	4.30 13
Galvanized (10 gage)	4.40 1.9.15		4.40 1.8		4.40 4		4.65[64] 4.75[44]					4.40 3		
Enameling (12 gage)	4.40 1		4.40 1.8	4.40 4		4.40 7	4.40[6] 4.90[76]						4.60 22	4.70 13
Long ternes (10 gage)	4.80 9.15		4.80 1			4.80 7	4.80 64							
Hi Str. low alloy, h.r.	5.05 1.5.9	5.05 1	5.05 1.6.8	5.05 4.5			5.05 1.4.6.13		5.05 3	5.05 26		5.05 3		5.25 13
Hi str. low alloy, c.r.	6.20 1.5.9		6.20 1.6.8	6.20 4.5			6.20 4.6.13		6.20 3			6.20 3		6.40 13
Hi str. low alloy, galv.	6.75 1											6.75 3		
STRIP Hot-rolled	3.25 5.7.9.28	3.25 3.66	3.25 1.6.8	3.25 5			3.25 1.4.6.13		3.25 3	3.35 26		3.25 3		3.45 13.67
Cold-rolled	4.15 5.7.9.63	4.30 3.66	4.30 8	4.15 2.5		4.15 7	4.15 4.6.13.40.48.49		4.15 3			4.15 3		4.40[64.81] 4.35[13.67]
Hi str. low alloy, h.r.	4.95 9		4.95 1.6.8	4.95 5			4.95 1.4.6.13		4.95 3	4.95 26		4.95 3		5.15 13
Hi Str. low alloy, c.r.	6.20 9			6.20 2.5			6.20 4.6.13		6.40 3			6.40 3		6.40 13
TINPLATE‡ Cokes, 1.50db base box 1.25 lb, deduct 20¢	$7.50 1.5.9.15		$7.50 1.6.8				$7.50 4					$7.60 3	$7.70 22	
Electrolytic 0.25, 0.50, 0.75 lb box	Deduct $1.15, 90¢ and 65¢ respectively from 1.50-lb coke base box price													
BLACKPLATE, 29 gage Hollowware enameling	5.30 1.5.15		5.30 1.6				5.30 4					5.40 3	5.50 22	
BARS Carbon steel	3.45 1.5.9.17	3.45 1.4.23	3.45 1.6.8	3.45 4	3.45 4		3.45 1.4.6		3.45 3.4		3.45 3			3.60 13
Reinforcing‡	3.45 1.5	3.45 4	3.45 1.6.8	3.45 4			3.45 1.4.6		3.45 3.4		3.45 3	3.45 3		
Cold-finished	4.10[5] 4.15[2.4] 17.52.69.71	4.15[2] 23.69.70	4.15 4.73.74	4.15 2.61	4.15 4.32.52		4.15 6.40.57		4.15 70					4.35[13] 4.30[4]
Alloy, hot-rolled	3.95 1.17	3.95 1.4.23	3.95 1.6.8		3.95 4		3.95 1.6.25	3.95 3	3.95 3.4		3.95 3			4.15 13
Alloy, cold-drawn	4.90 2.17.52.69.71	4.90 2.23.69.70	4.90 4.73.74	4.90 2.61	4.90 4.42.52		4.90 6.25.57	4.90 3	4.90 3.70					5.05[13]
Hi str. low alloy, h.r.	5.20 1.5		5.20 1.6.8	5.20 4			5.20 1.6	5.20 3	5.20 3		5.20 3			5.40 13
PLATE Carbon steel	3.50 1.5	3.50 1	3.50 1.6.8	3.50 4			3.50 1.13		3.50 3	3.60 26	3.50 3	3.50 3		3.75 13
Floor Plates	4.55 1	4.55	4.55 3	4.55 5						4.55 26				
Alloy	4.40 1	4.40 1	4.40 1				4.40 13			4.40 26	4.40 3	4.40 3		
Hi Str. low alloy	5.35 1.5	5.35 1	5.35 1.3	5.35 4.5			5.35 6			5.35 6	5.35 3	5.35 3		5.50 13
SHAPES, Structural	3.40 1.5.9	3.40 1.23	3.40 1.6.8					3.45 3	3.45 3		3.45 3			
Hi Str. low alloy	5.15 1.5	5.15 1	5.15 1.6.8				5.15 6	5.20 3	5.20 3		5.20 3			
MANUFACTURERS' WIRE Bright	4.50 2.5.18	4.50[2] 4.13.33.34		4.50 2.77			4.50 6	Kokomo=4.60[10]			4.50 3	4.60 3	Duluth=4.90[2] Pueblo=4.75[14]	
PILING, Steel Sheet	4.20[1.9]	4.20 1							4.20 3					

STEEL PRICES

Smaller numbers indicate producing companies. See key at right. Prices are in cents per lb unless otherwise noted. Extras apply.

Kansas City	Houston	Birmingham	WEST COAST Seattle, San Francisco, Los Angeles, Fontana		
					INGOTS Carbon forging, net ton
	$59.00 53				Alloy, net ton
		$53.00 11	F=$72.00[19]		**BILLETS, BLOOMS, SLABS** Carbon, rerolling, net ton
	$71.00 53	$63.00 11	F=$82.00[19]	Geneva=$63.00[16]	Carbon forging billets, net ton
	$74.00 53		F=$85.00[19]		Alloy net ton
				Portsmouth=$55.00[20]	**SHEET BARS**
					PIPE SKELP
	4.25 52	3.85 11	SF=4.50[24] LA=4.65[24,62]	Portsmouth=3.85[20] Worcester=4.15[2]	**WIRE RODS**
		3.35 4,11	SF,LA=4.05[24] F=4.25[19]	Ashland=3.35[7] Niles=3.50[64]	**SHEETS** Hot-rolled (18 ga. & hvr.)
		4.10 11	SF=5.05[24] F=5.00[19]		Cold-rolled
		4.40 4,11	SF, LA=5.15[24]	Ashland=4.40[7] Kokomo=4.50[30]	Galvanized (10 gage)
					Enameling (12 gage)
					Long ternes (10 gage)
		5.05 11	F=6.74[19]		Hi Str. low alloy, h.r.
			F=7.05[19]		Hi Str. low alloy, c.r.
					Hi Str. low alloy, galv.
3.85 53	3.65 53	3.25 11	SF, LA=4.00[24,62] F=4.40[19], S=4.25[52]	Ashland=3.25[7] Atlanta=3.40[65]	**STRIP** Hot-rolled
			F=5.40[19] LA=5.50[27]	New Haven=4.85[3,68]	Cold-rolled
		4.95 11	F=6.84[19]		Hi Str. low alloy, h. r.
			F=8.95[19]		Hi Str. low alloy, c.r.
		7.60 11	SF=8.25[24]		**TINPLATE** Cokes, 1.50-lb base box 1.25 lb, deduct 20¢
Deduct $1.15, 90¢ and 65¢ respectively from 1.50-lb coke base box price					Electrolytic 0.25, 0.50, 0.75 lb box
					BLACKPLATE, 29 gage Hollowware enameling
4.05 53	3.85 53	3.45 4,11	SF, LA=4.15[24] LA=4.15[62]	Atlanta=3.60[65]	**BARS** Carbon steel
4.05 53	3.85 53	3.45 4,11	SF, S=4.20[62] F=4.10[19]	Atlanta=3.60[65]	Reinforcing‡
				Putnam, Newark=4.55[69]	Cold-finished
4.55 53	4.35 53		LA=5.00[62] F=4.95[19]		Alloy, hot-rolled
				Newark,[69] Worcester[2]=5.20 Hartford=5.20[4]	Alloy, cold-drawn
		5.20	F=6.25[19]		Hi Str. low alloy, h.r.
	3.90 53	3.50 4,11	F=4.10[19] S=4.40[62] Geneva=3.50[16]	Claymont=3.60[29] Coatesville=3.60[21] Harrisburg=3.50[35]	**PLATE** Carbon steel
				Harrisburg=4.55[35]	Floor plates,
			F=5.40[19]	Coatesville=4.50[21]	Alloy
		5.35 11	F=5.95[19]	Geneva=5.35[16]	Hi Str. low alloy
4.00 53	3.80 53	3.40 11	SF=3.95[62] LA=4.00[24,62]	Phoenixville=3.30[56] Geneva=3.40[16]	**SHAPES,** Structural
		5.15 11	F=4.00[19] S=4.05[62]	Fontana=5.75[19] Geneva=5.15[16]	Hi Str. low alloy
5.10 53	4.90 53	4.50 4,11	SF, LA=5.45[24,62]	Portsmouth=4.50[29] Worcester=4.80[2]	**MANUFACTURERS' WIRE** Bright

Notes: †Special coated mfg ternes deduct $1.15 from 1.50-lb coke base box price. Can-making quality blackplate, 55 to 128-lb, deduct $1.90 from 1.50-lb coke base box. ‡Straight lengths only from producer to fabricator.

KEY TO STEEL PRODUCERS

With Principle Offices

1 Carnegie-Illinois Steel Corp., Pittsburgh
2 American Steel & Wire Co., Cleveland
3 Bethlehem Steel Co., Bethlehem
4 Republic Steel Corp., Cleveland
5 Jones & Laughlin Steel Corp., Pittsburgh
6 Youngstown Sheet & Tube Co., Youngstown
7 Armco Steel Corp., Middletown, Ohio
8 Inland Steel Co., Chicago
9 Weirton Steel Co., Weirton, W. Va.
10 National Tube Co., Pittsburgh
11 Tennessee Coal, Iron & R. R. Co., Birmingham
12 Great Lakes Steel Corp., Detroit
13 Sharon Steel Corp., Sharon, Pa.
14 Colorado Fuel & Iron Corp., Denver
15 Wheeling Steel Corp., Wheeling, W. Va.
16 Geneva Steel Co., Salt Lake City
17 Crucible Steel Co. of America, New York
18 Pittsburgh Steel Co., Pittsburgh
19 Kaiser Steel Corp., Oakland, Calif.
20 Portsmouth Div., Detroit Steel Corp., Detroit
21 Lukens Steel Co., Coatesville, Pa.
22 Granite City Steel Co., Granite City, Ill.
23 Wisconsin Steel Co., South Chicago, Ill.
24. Columbia Steel Co., San Francisco
25 Copperweld Steel Co., Glassport, Pa.
26 Alan Wood Steel Co., Conshohocken, Pa.
27 Calif. Cold Rolled Steel Corp., Los Angeles
28 Allegheny Ludlum Steel Corp., Pittsburgh
29 Worth Steel Co., Claymont, Del.
30 Continental Steel Corp., Kokomo, Ind.
31 Rotary Electric Steel Co., Detroit
32 Laclede Steel Co., St. Louis
33 Northwestern Steel & Wire Co., Sterling, Ill.
34 Keystone Steel & Wire Co., Peoria, Ill.
35 Central Iron & Steel Co., Harrisburg, Pa.
36 Carpenter Steel Co., Reading, Pa.
37 Eastern Stainless Steel Corp., Baltimore
38 Washington Steel Corp., Washington, Pa.
39 Jessop Steel Co., Washington, Pa.
40 Blair Strip Steel Co., New Castle, Pa.
41 Superior Steel Corp., Carnegie, Pa.
42 Timken Steel & Tube Div., Canton, Ohio
43 Babcock & Wilcox Tube Co., Beaver Falls, Pa.
44 Reeves Steel & Mfg. Co., Dover, Ohio
45 John A. Roebling's Sons Co., Trenton, N. J.
46 Simonds Saw & Steel Co., Fitchburg, Mass.
47 McLouth Steel Corp., Detroit
48 Cold Metal Products Co., Youngstown
49 Thomas Steel Co., Warren, Ohio
50 Wilson Steel & Wire Co., Chicago
51 Sweet's Steel Co., Williamsport, Pa.
52 Superior Drawn Steel Co., Monaca, Pa.
53 Tremont Nail Co., Wareham, Mass.
54 Firth Sterling Steel & Carbide Corp., McKeesport, Pa.
55 Ingersoll Steel Div., Chicago
56 Phoenix Iron & Steel Co., Phoenixville, Pa.
57 Fitzsimmons Steel Co., Youngstown
58 Stanley Works, New Britain, Conn.
59 Universal-Cyclops Steel Corp., Bridgeville, Pa.
60 American Cladmetals Co., Carnegie, Pa.
61 Cuyahoga Steel & Wire Co., Cleveland
62 Bethlehem Pacific Coast Steel Corp., San Francisco
63 Follansbee Steel Corp., Pittsburgh
64 Niles Rolling Mill Co., Niles, Ohio
65 Atlantic Steel Co., Atlanta
66 Acme Steel Co., Chicago
67 Joslyn Mfg. & Supply Co., Chicago
68 Detroit Steel Corp., Detroit
69 Wyckoff Steel Co., Pittsburgh
70 Bliss & Laughlin, Inc., Harvey, Ill.
71 Columbia Steel & Shafting Co., Pittsburgh
72 Cumberland Steel Co., Cumberland, Md.
73 La Salle Steel Co., Chicago
74 Monarch Steel Co., Inc., Hammond, Ind.
75 Empire Steel Co., Mansfield, Ohio
76 Mahoning Valley Steel Co., Niles, Ohio
77 Oliver Iron & Steel Co., Pittsburgh
78 Pittsburgh Screw & Bolt Co., Pittsburgh
79 Standard Forging Corp., Chicago
80 Driver Harris Co., Harrison, N. J.
81 Detroit Tube & Steel Div., Detroit
82 Reliance Div., Eaton Mfg. Co., Massillon, Ohio
83 Sheffield Steel Corp., Kansas City
84 Plymouth Steel Co., Detroit

STAINLESS STEELS

Base prices, in cents per pound, f.o.b. producing point

Product	301	302	303	304	316	321	347	410	416	430
Ingots, rerolling	12.75	13.50	15.00	14.50	22.75	18.25	20.00	11.25	13.75	11.50
Slabs, billets, rerolling	17.00	18.25	20.25	19.25	30.25	24.50	26.75	15.00	18.50	15.25
Forg. discs, die blocks, rings	30.50	30.50	33.00	32.00	49.00	36.50	41.00	24.50	25.00	25.00
Billets, forging	24.25	24.25	26.25	25.50	39.00	29.00	32.75	19.50	20.00	20.00
Bars, wire, structurals	28.50	28.50	31.00	30.00	46.00	34.00	38.50	23.00	23.50	23.50
Plates	32.00	32.00	34.00	34.00	50.50	39.50	44.00	26.00	26.50-27.00	26.50
Sheets	37.50	37.50	39.50	39.50	53.00	45.50	50.00	33.00	33.50	35.50
Strip, hot-rolled	24.25	25.75	30.00	27.75	46.00	34.50	38.75	21.25	28.00	21.75
Strip, cold-rolled	30.50	33.00	36.50	35.00	55.00	44.50	48.50	27.00	33.50	27.50

STAINLESS STEEL PRODUCING POINTS—*Sheets:* Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38, 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary, 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Ft. Wayne, Ind., 67; Lockport, N. Y., 46.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38; W. Leechburg, Pa., 28; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 80; Youngstown, 48; Lockport, N. Y., 46; New Britain, Conn., 58; Sharon, 13; Butler, Pa., 7.

Bars: Baltimore, 7; Duquesne, Pa., 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1; Syracuse, N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y., 46; Canton, Ohio, 42; Ft. Wayne, Ind., 67.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Ft. Wayne, Ind., 67; Trenton, N. J., 45; Harrison, N. J., 80; Baltimore, 7; Dunkirk, 28.

Structurals: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44.

Plates: Brackenridge, Pa., 28; Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks, rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28.

Forging billets: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago, 1.

ELECTRICAL SHEETS

22 gage, HR cut lengths, f.o.b. mill

	Cents per lb.
Armature	6.20
Electrical	6.70
Motor	*7.95
Dynamo	8.75
Transformer 72	9.30
Transformer 65	9.85
Transformer 58	10.55
Transformer 52	11.35

PRODUCING POINTS—Beech Bottom, W. Va., 18; Brackenridge, Pa., 28; Follansbee, W. Va., 63; Granite City, Ill., 22*; add 0.20¢; Indiana Harbor, Ind., 8; Mansfield, Ohio, 75; Niles, Ohio, 64, 76; Vandergrift, Pa., 1; Warren, Ohio, 4; Zanesville, Ohio, 7.

MERCHANT WIRE PRODUCTS

	To dealers, f.o.b. mill	*Base Column Pittsburg, Calif.*
Standard & coated nails*	106	125§
Woven wire fence†	116	139
Fence posts, carloads††	116	...
Single loop bale ties	113	137
Galvanized barbed wire**	126	146
Twisted barbless wire	126	146

* Pgh., Chi., Duluth; Worcester, 6 columns higher; Houston, 8 columns higher; Kansas City, 12 columns higher. † 15½ gage and heavier. ** On 80 rod spools, in carloads. †† Duluth, Joliet; Johnstown, 112.

	Base per 100 lb	*Pittsburg, Calif.*
Merch. wire, annealed‡	$5.35	$6.30
Merch. wire, galv.‡	5.60	6.55
Cut nails, carloads‡‡	6.75	...

‡ Add 30¢ at Worcester; 20¢ at Chicago; 10¢ at Sparrows Pt.
‡‡ Less 20¢ to jobbers.
§ Torrance, 126.

PRODUCING POINTS — *Standard, Coated or galvanized nails, woven wire fence, bale ties, and barbed wire:* Alabama City, Ala., 4; Atlanta, 65; Aliquippa, Pa. (except bale ties), 5; Bartonville, Ill. (except bale ties), 34; Chicago, 4; Donora, Pa., 2; Duluth, 2; Fairfield, Ala., 11; Johnstown, Pa. (except bale ties), 3; Joliet, Ill., 2; Kokomo, Ind., 30; Minnequa, Colo., 14; Monessen, Pa. (except bale ties), 18; Pittsburg, Calif., 24; Portsmouth, Ohio, 20; Rankin, Pa. (except bale ties), 2; Sparrows Point (except woven fence), 3; Sterling, Ill., 33; San Francisco (except nails and woven fence), 14; Torrance, Calif. (nails only), 24; Worcester (nails only), 2; Houston (except bale ties), 83; Kansas City, 83.

Fence posts: Duluth, 2; Johnstown, Pa., 3; Joliet, Ill., 2; Minnequa, Colo., 14; Moline, Ill., 4; Williamsport, Pa., 51.

Cut nails: Wheeling, W. Va., 15; Conshohocken, Pa., 26; Warehame, Mass., 53.

RAILS, TRACK SUPPLIES

F.o.b. mill

Standard rails, 100 lb and heavier, No. 1 quality, per 100 lb	$3.40
Joint bars, per 100 lb	4.40
Light rails, per 100 lb	3.75

	Base Price cents per lb
Track spikes†	5.60
Axles	5.25
Screw spikes	8.60
Tie plates	4.20
Pittsburg, Torr., Calif.; Seattle	4.35
Track bolts, untreated**	8.85
Track bolts, heat treated, to railroads**	9.10

** Minnequa, deduct 25¢. † Kansas City, 5.85¢.

PRODUCING POINTS—*Standard rails:* Bessemer, Pa., 1; Ensley, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Minnequa, Colo., 14; Steelton, 3.

Light rails: All the above except Indiana Harbor and Steelton, plus Fairfield, Ala., 11; Johnstown, 3; Minnequa, 14.

Joint bars: Bessemer, Pa., 1; Fairfield, Ala., 11; Indiana Harbor, Ind., 8; Joliet, Ill., 1; Lackawanna, N. Y., 3; Steelton, Pa., 3; Minnequa, Colo., 14.

Track spikes: Fairfield, Ala., 11; Indiana Harbor, Ind., 6, 8; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 5; Chicago, 4; Struthers, 6; Youngstown, 4.

Track bolts: Fairfield, Ala., 11; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 77, 78.

Axles: Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 79; Johnstown, Pa., 3; McKees Rocks, Pa., 1.

Tie plates: Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Pittsburg, Calif., 24; Pittsburgh, 4; Seattle, 62; Steelton, Pa., 3; Torrance, Calif., 24; Minnequa, Colo., 14.

Numbers after producing points correspond to steel producers. See key on Steel Price page.

PIPE AND TUBING

Base discounts, f.o.b. mills
Base price, about $200.00 per net ton

Standard, T & C

Steel, Buttweld*	*Black*	*Galv*
⅛-in.	40½ to 38½	24 to 22
¼-in.	43½ to 41½	28 to 26
1-in.	46 to 44	31 to 29
1¼-in.	46½ to 44½	31½ to 29½
1½-in.	47 to 45	32 to 30
2-in.	47½ to 45½	32½ to 30½
2½ to 3-in.	48 to 46	33 to 31
Steel, lapweld		
2-in.	38	22½
2½ to 3-in.	42	26½
3½ to 6-in.	43 to 40	27½ to 24½
Steel, seamless		
2-in.	36	20½
2½ to 3-in.	39	23½
3½ to 6-in.	41	25½
Wrought Iron, buttweld		
⅛-in.	+26½	+53
¼-in.	+16½	+42
1 & 1¼-in.	+10½	+33
1½-in.	+ 4½	+29½
2-in.	+ 4	+29
Wrought Iron, lapweld		
2-in.	+13½	+37
2½ to 3½-in.	+11	+32½
4-in.	+ 6	+26½
4½ to 8-in.	+ 8	+28
9 to 12-in.	+18	+37½

Extra Strong, Plain Ends

Steel, buttweld		
⅛-in.	39½ to 37½	24½ to 22½
¼-in.	43½ to 41½	28½ to 26½
1-in.	45½ to 43½	31½ to 29½
1¼-in.	46 to 44	32 to 30
1½-in.	46½ to 44½	32½ to 30½
2-in.	47 to 45	33 to 32
2½ to 3-in.	47½ to 45½	33½ to 31½
Steel, lapweld		
2-in.	37	22½
2½ to 3-in.	42	27½
3½ to 6-in.	44½ to 41½	30 to 27
Steel, seamless		
2-in.	35	20½
2½ to 3-in.	38	24½
3½ to 6-in.	42½	28
Wrought Iron, buttweld		
⅛-in.	+22	+47
¼-in.	+15½	+40
1 to 2-in.	+ 5½	+29
Wrought Iron, lapweld		
2-in.	+10½	+33½
2½ to 4-in.	+ 1	+22
4½ to 6-in.	+ 5	+26½
7 & 8-in.	list	+21½
9 to 12-in.	+11½	+29½

For threads only, buttweld, lapweld and seamless pipe, one point higher discount (lower price) applies. For plain ends, buttweld, lapweld and seamless pipe 3-in. and smaller, three points higher discount (lower price) applies, while for lapweld and seamless 3½-in. and larger four points higher discount (lower price) applies. On buttweld and lapweld steel pipe, jobbers are granted a discount of 5 pct. *Fontana, Calif., deduct 11 points from figures in left columns.

BOILER TUBES

Seamless steel and electric welded commercial boiler tubes and locomotive tubes, minimum wall. Prices per 100 ft at mill in carload lots, cut lengths 10 to 24 ft inclusive.

OD in.	gage BWG	Seamless H.R.	Seamless C.R.	Electric H.R.	Weld C.D.
2	13	$20.61	$24.24	$19.99	$23.51
2½	12	27.71	32.58	26.88	31.60
3	12	30.82	36.27	29.90	35.18
3½	11	38.52	45.38	37.36	43.99
4	10	47.82	56.25	46.39	54.56

Prices continued on next page

WAREHOUSE PRICES

Base prices, f.o.b. warehouse, dollars per 100 lb. (Metropolitan area delivery, add 20¢ to base price except Birmingham, San Francisco, Cincinnati, New Orleans, St. Paul (*), add 15¢; Philadelphia, add 25¢).

CITIES	SHEETS			STRIP		PLATES	SHAPES	BARS		ALLOY BARS			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled, A 4615 As-rolled	Hot-Rolled, A 4140 Ann.	Cold-Drawn, A 4615 As-rolled	Cold-Drawn, A 4140 Ann.
Baltimore	5.15	6.39[1]	6.46–6.46[2]	5.59–5.59[11]	....	6.04[11]	5.89	5.79[11]	6.19	9.89	9.99	11.12	11.49
Birmingham*	5.15[10]	5.95	6.15[7]	5.10[10]	....	5.40	5.25	5.10[10]	6.88	....	....	....	....
Boston	5.75	6.55[10] 6.90	6.87–7.02[21]	5.70	6.90–6.95	6.08	5.75	5.60	6.19–6.69	9.70–9.97	8.50–10.00	11.15	11.45
Buffalo	5.05	5.80	6.80	5.41	7.27	5.45	5.15	5.05	5.75	9.80	9.90	11.05	11.35
Chicago	5.15	5.95	6.75	5.10	6.80	5.40	5.25	5.10	5.85	9.25	9.55	10.70	11.00
Cincinnati*	5.42–5.97	5.99–6.24	6.34–6.39	5.35	....	5.79–5.79	5.64	5.35–5.54	5.96–6.25	9.60–9.81	9.90–10.11	11.05–11.26	11.35–11.56
Cleveland	5.15	5.95	7.00	5.24	6.35	5.52	5.37	5.12	5.75	9.36	9.66	10.81	11.11
Detroit	5.33	6.08	7.09	5.49	6.27–6.58	5.79	5.64	5.39	5.91	9.58	9.88	11.01	11.31
Houston	5.75	....	....	6.10	....	6.00	5.95	6.10	7.80	10.35–10.45	10.50–10.60	11.50	11.95–12.10
Indianapolis	....	....	....	....	7.38	....	....	....	....	....	....	....	....
Kansas City	5.65	6.40	7.30	5.70	6.95	5.80	5.65	5.60	6.35	9.85	10.15	11.30	11.60
Los Angeles*	5.80	7.00	7.50[2]	5.85	8.35[16]	5.80	5.70	5.80	7.55	10.05	10.20	11.70	12.10
Memphis	5.93	6.68	....	5.98	6.80	6.08	5.93	5.68	....	....	....	....	....
Milwaukee	5.29	6.09	6.84	5.24	6.32	5.54	5.39	5.24	5.89	9.39	9.69	10.84	11.14
New Orleans*	5.50[1]	6.85[1]	....	5.55[1]	6.90[1]	5.65	5.55[1]	5.55[1]	6.75	....	....	....	....
New York	5.55–5.65	6.54–6.64[1]	6.90–7.05[2]	5.84	6.76[5]	5.90	5.65	5.75	6.44	9.60	9.90	11.05	11.35
Norfolk	6.10	7.00	....	6.30	....	6.15	6.20	6.15	7.20	....	....	....	....
Omaha	....	....	....	....	....	....	....	....	....	....	....	....	....
Philadelphia*	5.30	6.20	6.70[2]	5.65	6.29	5.45	5.25	5.50	6.21	9.35	9.65	10.80	11.10
Pittsburgh	5.05	5.80	6.50	5.20	6.00	5.15	5.05	5.00	5.75	9.25	9.55	10.70	11.00
Portland	6.60–7.10[1]	8.40[2]	8.20[2]	6.85[9]	....	6.40[9]	6.50	6.45–6.45[9]	8.60[14]	12.00[18]	11.60[18]	....	....
Salt Lake City	5.85	6.70	8.75	7.45	8.75	6.10[3]	5.90	7.35[8]	8.75	....	....	....	....
San Francisco*	6.25[11]	7.80[2]	7.55[2]	6.75[11]	7.85[16]	6.15[11]	6.00[11]	6.15[11]	7.55	10.05	10.20	11.70	12.10
Seattle	6.60[4]	8.15[2]	8.20[2]–8.35[2]	6.85[4]	....	6.35[4]	6.20[4]	6.35[4]	8.50[14]	....	11.60[18]	....	13.60[18]
St. Louis	5.48	6.28	7.08	5.43	6.68–7.84	5.73	5.58	5.43	6.08	9.58	9.88	11.03	11.33
St. Paul*	5.71	6.51	7.26	5.66	6.16–6.82	5.96	5.81	5.66	6.31	9.81	10.11	11.26	11.56

BASE QUANTITIES: (*Standard unless otherwise keyed on prices.*) Hot-rolled sheets and strip, hot rolled bars and bar shapes, structural shapes, plate, galvanized sheets and cold-rolled sheets: 2000 to 9999 lb. Cold-finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb.

All HR products may be combined to determine quantity bracket. All galvanized sheets may be combined to determine quantity bracket. CR sheets may not be combined with each other or with galv. sheets to determine quantity bracket.

Exceptions:
(1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 to 5999 lb; (6) 1000 lb and over; (7) 500 to 1499 lb; (8) 400 lb and over; (9) 400 to 9999 lb; (10) 500 to 9999 lb; (11) 400 to 3999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 9999 lb; (16) 6000 lb and over; (17) up to 1999 lb; (18) 1000 to 4999 lb; (19) 1500 to 3499 lb; (20) CR sheets may be combined for quantity; (21) 3 to 24 bundles.

PIG IRON PRICES

Dollars per gross ton. Delivered prices do not include 3 pct tax on freight.

PRODUCING POINT PRICES

Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem	48.00	48.50	49.00	49.50	.....
Birmingham	41.88	42.38	.....	.....	.....
Buffalo	46.00	46.50	47.00	.....	.....
Chicago	46.00	46.50	46.50	47.00	.....
Cleveland	46.00	46.50	46.50	47.00	51.00
Duluth	46.00	46.50	46.50	47.00	.....
Erie	46.00	46.50	46.50	47.00	.....
Everett	.....	50.50	51.00	.....	.....
Granite City	47.90	48.40	48.90	.....	.....
Ironton, Utah	46.00	46.50	.....	.....	.....
Pittsburgh	46.00	46.50	46.50	47.00	.....
Geneva, Utah	46.00	46.50	.....	.....	.....
Sharpsville	46.00	46.50	46.50	47.00	.....
Steelton	48.00	48.50	49.00	49.50	54.00
Struthers, Ohio	46.00	.....	.....	.....	.....
Swedeland	48.00	48.50	49.00	49.50	.....
Toledo	46.00	46.50	46.50	47.00	.....
Troy, N. Y.	48.00	48.50	49.00	.....	54.00
Youngstown	46.00	46.50	46.50	47.00	.....

DELIVERED PRICES (BASE GRADES)

Consuming Point	Producing Point	Rail Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Boston	Everett	$0.50 Arb.	.....	50.50	51.00	.....	.....
Boston	Steelton	6.90	.....	.....	.....	.....	60.90
Brooklyn	Bethlehem	4.29	.....	52.79	53.29	53.79	.....
Cincinnati	Birmingham	6.70	48.58	49.08	.....	.....	.....
Jersey City	Bethlehem	2.63	.....	51.13	51.63	52.13	.....
Los Angeles	Geneva-Ironton	7.70	53.70	54.20	.....	.....	.....
Mansfield	Cleveland-Toledo	3.33	49.33	49.83	49.83	50.33	54.33
Philadelphia	Bethlehem	2.39	50.39	50.89	51.39	51.89	.....
Philadelphia	Swedeland	1.44	49.44	49.94	50.44	50.94	.....
Philadelphia	Steelton	3.09	.....	.....	.....	.....	57.09
Rochester	Buffalo	2.63	48.63	49.13	49.63	.....	.....
San Francisco	Geneva-Ironton	7.70	53.70	54.20	.....	.....	.....
Seattle	Geneva-Ironton	7.70	53.70	54.20	.....	.....	.....
St. Louis	Granite City	0.75 Arb.	48.65	49.15	49.65	.....	.....
Syracuse	Buffalo	3.58	49.58	50.08	50.58	.....	.....

Producing point prices are subject to switching charges; silicon differential (not to exceed 50c per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct for foundry iron); phosphorus differentials, a reduction of 38c per ton for phosphorus content of 0.70 pct and over; manganese differentials, a charge not to exceed 50c per ton for each 0.50 pct manganese content in excess of 1.00 pct. $2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and $1 per ton extra for each additional 0.25 pct nickel.

Silvery iron (blast furnace) silicon 6.01 to 6.50 pct C/L per g.t., f.o.b. Jackson, Ohio—$57.00; f.o.b. Buffalo, $58.25. Add $1.00 per ton for each additional 0.50 pct $1 up to 17 pct. Add 50c per ton for each 0.50 pct Mn over 1.00 pct. Add $1.00 per ton for 0.75 pct or more P. Bessemer ferrosilicon prices are $1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus $60.00 per gross ton, f.o.b. Lyle, Tenn. Delivered Chicago, $68.56. High phosphorus charcoal pig iron is not being produced.

IF *Quality* IS THE PARAMOUNT FACTOR IN YOUR GEAR REQUIREMENTS

Write your own ticket!

- We specialize in the mass production of precision gears to customers' specifications.
- We have the necessary facilities and skill to produce such gears in production quantities, and to meet any specifications that modern machine tools, under the supervision of New England craftsmen can turn out.
- You furnish the specifications — we'll produce the gears.

Our extensive facilities and modern machine tools are also adaptable to the manufacture of all kinds of various parts other than gears, such as the following:

SPROCKETS SPLINED SHAFTS SCREW MACHINE PARTS

up to 2¼" in diameter

We are also exceptionally well equipped to build, to your specifications, such mechanical units as—

PUMPS • SPEED REDUCERS & COMPLETE MACHINES

either in experimental or production quantities. Our well-known reputation is your guarantee of satisfaction. Let us quote on your requirements.

• PERKINS MAKES — In All Materials, Metallic & Non-Metallic
Helical Gears, Bevel Gears, Ratchets, Worm Gears, Spiral Gears, Spur Gears, Ground Thread Worms

PERKINS MACHINE & GEAR Company
West Springfield, Massachusetts

Continued

BOLTS, NUTS, RIVETS, SET SCREWS

Consumer Prices

(Bolts and nuts, f.o.b. mill Pittsburgh, Cleveland, Birmingham or Chicago)
Base discount

Machine and Carriage Bolts

	Pct Off List Less Case	C
½ in. & smaller x 6 in. & shorter	27	31
9/16 & ⅝ in. x 6 in. & shorter	29	40
¾ in. & larger x 6 in. shorter	26	37
All diam, longer than 6 in.	22	34
Lag, all diam over 6 in. & longer	28	39
Lag, all diam x 6 in. & shorter	30	41
Plow bolts	40	—

Nuts, Cold Punched or Hot Pressed
(Hexagon or Square)

½ in. and smaller	25
9/16 to ⅝ in.	23
¾ to 1½ in. inclusive	23
1⅝ in. and larger	16

Semifinished Hexagon Nuts
(Less case lots)

	Pct Off List Reg	Hvy	La
½ in. and smaller	41	35	41
9/16 to ⅝ in.	36	30	36
¾ to 1½ in.	31	27	30
1⅝ in. and larger	21	17	..

In full case lots, 15 pct additional discount.

Stove Bolts

	Pct Off List
Packaged, steel, plain finish	63
Packaged, plated finish	50
Bulk, plain finish**	69*

* Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

** Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Large Rivets

(½ in. and larger)
Base per 100 lb

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham, Lebanon, Pa. $7.35

Small Rivets

(7/16 in. and smaller)
Pct Off List

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham 43

Cap and Set Screws

(In bulk)

	Pct Off List
Hexagon head cap screws, coarse or fine thread, ¼ in. thru ⅝ in. x 6 in., SAE 1020, bright	60
¼ in. through ⅝ in. x 6 in. and shorter high C heat treated	54
Milled studs	33
Flat head cap screws, listed sizes	24
Fillister head cap, listed sizes	43
Set screws, sq head, cup point, 1 in. diam and smaller x 6 in. and shorter	59

C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	4.15¢
0.41 to 0.60 carbon	5.95¢
0.61 to 0.80 carbon	6.65¢
0.81 to 1.05 carbon	8.50¢
1.06 to 1.35 carbon	10.30¢

Worcester, add 0.30¢.

LAKE SUPERIOR ORES

(51.50% Fe; natural content, delivered lower lake ports)
Per gross ton

Old range, bessemer	$8.10
Old range, nonbessemer	7.95
Mesabi, bessemer	7.85
Mesabi, nonbessemer	7.70
High phosphorus	7.70

After Jan. 25, 1950, increases or decreases in Upper Lake rail freight, dock handling charges and taxes are for buyers' account.

ELECTRODES

Cents per lb., f.o.b. plant, threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb
	GRAPHITE	
17, 18, 20	60, 72	16.00¢
8 to 16	48, 60, 72	16.50¢
7	48, 60	17.75¢
6	48, 60	19.00¢
4, 5	40	19.50¢
3	40	20.50¢
2½	24, 30	21.00¢
2	24, 30	23.00¢
	CARBON	
40	100, 110	7.50¢
35	65, 110	7.50¢
30	65, 84, 110	7.50¢
24	72 to 104	7.50¢
20	84, 90	7.50¢
17	60, 72	7.50¢
14	60, 72	8.00¢
10, 12	60	8.25¢
8	60	8.50¢

CLAD STEEL

Base prices, cents per pound, f.o.b. mill

Stainless-carbon	Plate	Sheet
No. 304, 20 pct,		
Coatesville, Pa. (21)..	*26.50	
Washgtn, Pa. (39)....	*26.50	
Claymont, Del. (29)...	*26.50	
Conshohocken, Pa. (26)		*22.50
New Castle, Ind. (55).	*26.50	*24.00
Nickel-carbon		
10 pct, Coatesville (26)..	27.50	
Inconel-carbon		
10 pct, Coatesville (21)..	36.00	
Monel-carbon		
10 pct, Coatesville (21)..	29.00	
No. 302 Stainless-copper-stainless, Carnegie, Pa. (60)		75.00
Aluminized steel sheets, hot dip, Butler, Pa. (7).....		7.75

*Includes annealing and pickling, or sandblasting.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	$1.00
18	4	1	—	5	$1.565
18	4	2	—	—	$1.13
1.5	4	1.5	8	—	71.5¢
6	4	2	6	—	76.5¢

High-carbon-chromium	57.5¢
Oil hardened manganese	32¢
Special carbon	29.5¢
Extra carbon	24.5¢
Regular carbon	21¢

Warehouse prices on and east of Mississippi are 2½¢ per lb higher. West of Mississippi, 4½¢ higher.

COKE

Furnace, beehive (f.o.b. oven)	Net Ton
Connellsville, Pa.	$14.00 to $14.50
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa.	$16.00 to $16.50
Foundry, oven coke	
Buffalo, del'd	$24.00
Chicago, f.o.b.	21.00
Detroit, f.o.b.	20.40
New England, del'd	23.40
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	21.25
Swedeland, Pa., f.o.b.	21.20
Painesville, Ohio, f.o.b.	21.90
Erie, del'd	$21.04 to 21.25
Cleveland, del'd	22.62
Cincinnati, del'd	22.71
St. Paul, f.o.b.	21.00
St. Louis, del'd	21.60
Birmingham, del'd	20.20

FLUORSPAR

Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill. Base price, per ton net: Effective CaF, content:

70% or more	$37.00
60% or less	34.00

Prices Continued on Next Page

UNLIMITED KVA PROTECTION
for this 400 HP, 2300 Volt Synchronous Motor

Steel Mill Air-Compressor Installation

Nothing to Replace— No Calculations— No Changes later on with EC&M VALIMITOR (Volt-Ampere-Limitor) Motor Starters

Simplified *short circuit protection* without a ceiling—because under a fault condition, the maximum fault current is limiled to 25,000 KVA or less (steady state current). The well-known EC&M Type ZHS heavy-duty, magnetic contactor used in VALIMITOR Starters clears such faults quickly.

Because protection is *unlimited*—there's no need to calculate existing short circuit capability—no need to fear that these starters will be out-moded by future growth in KVA. And when a short occurs, there's nothing to replace—no spares to stock—no time-out for replacement. To restart—just press the start button.

For purchasing simplicity, EC&M VALIMITOR Starters for 2300-4600 volt motors have no equal. Specify only horsepower size, voltage, phase and frequency. EC&M VALIMITOR Starters give effective protection at all times—during starting, accelerating and running, *irrespective of KVA capacity* or *magnitude of fault.*

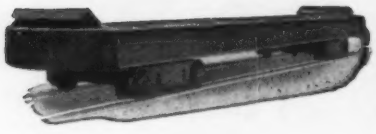
WRITE FOR COMPLETE FACTS— Ask for T9-117 Reprint Bulletin

THE ELECTRIC CONTROLLER & MFG. CO.
2698 EAST 79th STREET • CLEVELAND 4, OHIO

ATLAS

STRIP HANDLING EQUIPMENT

• Strip steel can be handled very economically on rail cars as compared with other means of conveyance. Strip cars can be handled by heavy-duty rubber tired tractors or by locomotives running on the track rails, or they can be self-propelled motor-driven with power supplied by storage battery in the car.

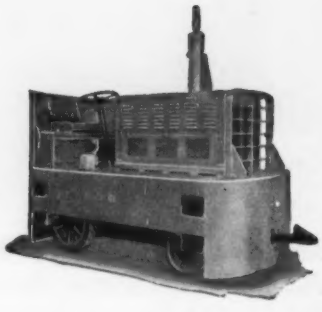


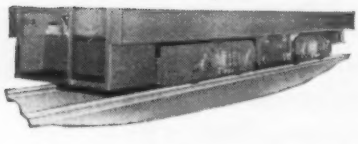
125-Ton DOUBLE TRUCK CAR

for handling steel strip in rolls. This car is hauled by tractor shown below.

SPECIAL HEAVY-DUTY GAS-ELECTRIC TRACTOR

for hauling 125-Ton Strip Handling Cars. Tractors run on rubber tires.



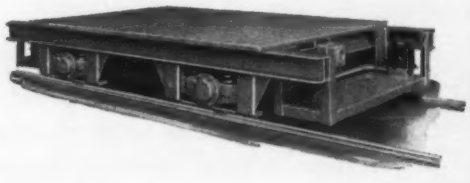


135-Ton FLAT CAR

Powered by storage battery for handling sheet steel.

25-Ton PLATFORM CAR

Powered by storage battery, operates at slow speed and has operator's platform at each end.



ATLAS ENGINEERING SERVICE IS ALWAYS AT YOUR SERVICE

THE ATLAS CAR & MFG. CO.

ENGINEERS MANUFACTURERS

1140 IVANHOE RD. CLEVELAND 10, OHIO, U. S. A.

REFRACTORIES (*F.o.b. works*)

Fire Clay Brick	*Carloads, Per 1000*
First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5)	$86.00
No. 1 Ohio	80.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	80.00
No. 2 Ohio	72.00
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.50)	14.00

Silica Brick	
Mt. Union, Pa., Ensley, Ala.	$86.00
Childs, Pa.	90.00
Hays, Pa.	91.00
Chicago District	95.00
Western Utah and Calif.	101.00
Super Duty, Hays, Pa., Athens, Tex., Chicago	106.00
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	15.00
Silica cement, net ton, bulk, Hays, Pa.,	17.00
Silica cement, net ton, bulk, Ensley, Ala.	16.00
Silica cement, net ton, bulk, Chicago District	16.00
Silica cement, net ton, bulk, Utah and Calif.	22.50

Chrome Brick	*Per Net Ton*
Standard chemically bonded, Balt., Chester	$69.00

Magnesite Brick	
Standard, Baltimore	$91.00
Chemically bonded, Baltimore	80.00

Grain Magnesite	*St. ⅜-in. grain*
Domestic, f.o.b. Baltimore, in bulk fines removed	$56.00 to $57.00
Domestic, f.o.b. Chewelah, Wash., in bulk	33.00
in sacks	38.00

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢... $12.25

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.l.f. New York, ocean bags	7.4¢ to 9.0¢
Canadian sponge iron, del'd, in East	10.00¢
Domestic sponge iron, 98+% Fe, carload lots	9.0¢ to 15.0¢
Electrolytic iron, annealed, 99.5+% Fe	31.5¢ to 39.5¢
Electrolytic iron unannealed, minus 325 mesh, 99+% Fe	45.5¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+% Fe	70.0¢ to $1.35
Aluminum	31.50¢
Brass, 10 ton lots	23.50¢ to 27.25¢
Copper, electrolytic	27.75¢
Copper, reduced	27.00¢
Cadmium, 100-199 lb	$2.95
Chromium, electrolytic, 99% min., and quantity	$3.50
Lead	17.00¢
Manganese	52.00¢
Molybdenum, 99%	$2.65
Nickel, unannealed	56.00¢ to 66.00¢
Nickel, annealed	72.00¢
Nickel, spherical, unannealed	69.00¢
Silicon	34.00¢
Solder powder	8.5¢ plus metal values
Stainless steel, 302	75.00¢
Tin	85.75¢
Tungsten, 99%	$2.90
Zinc, 10 ton lots	15.75¢ to 18.50¢

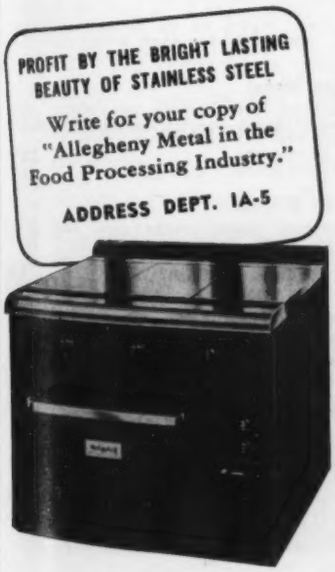
CAST IRON WATER PIPE

	Per net ton
6 to 24-in., del'd Chicago	$91.80 to $95.30
6 to 24-in. del'd N. Y.	91.00 to 92.00
6 to 24-in., Birmingham	78.00 to 82.50
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less	$108.50 to $113.00

Class "A" and gas pipe, $5 extra; 4-in. pipe is $5 a ton above 6-in.

Prices Continued on Page 138

The ideal metal in *any* kitchen is ALLEGHENY METAL


PROFIT BY THE BRIGHT LASTING BEAUTY OF STAINLESS STEEL
Write for your copy of "Allegheny Metal in the Food Processing Industry."
ADDRESS DEPT. IA-5

No other metal answers the demands of domestic or commercial kitchen service so perfectly as stainless steel.

That's because no other metal possesses stainless steel's combination of qualities to the same degree: its great strength, high resistance to heat, wear and corrosion, long-lasting beauty and easy sanitation. Modern kitchen ranges shine with Allegheny Metal—and everything else in the kitchen, too: work surfaces and cabinets, refrigerator trays and trim, sinks and utensils.

Both to the fabricator and user of kitchen equipment, the name "Allegheny Metal" means the *pioneer* stainless steel—backed by years of known quality and dependable uniformity. ● *Specify it for best results.*

ALLEGHENY LUDLUM STEEL CORPORATION
Pittsburgh, Pa.

Nation's Leading Producer of Stainless Steels in All Forms

AL

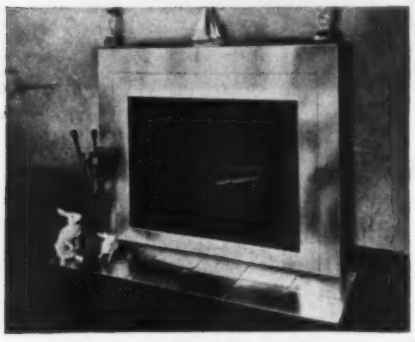
W&D 2727

ALLEGHENY METAL is stocked by all Joseph T. Ryerson & Son, Inc. warehouses

STAINLESS STEEL . . .

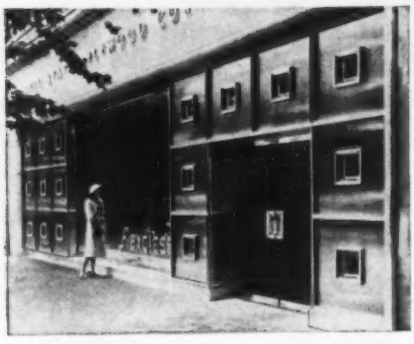
its many applications in the field of ARCHITECTURE

Stainless steel has inspired resourceful architects with so many uses for this most practical and decorative metal that it has certainly come into its own!



Because it will not rust, corrode or discolor, stainless steel is eminently practical: it is sturdy, long lasting and variously adaptable.

Because of its silvery sheen it lends the luxurious, decorative touch of beauty to interiors and exteriors.



Especially adaptable to the ideas of architects is *MicroRold* Stainless Steel. It is now being rolled in sheets up to 36″ wide as light as .010″ in thickness, and sheets 30″ wide as light as .005″ with *amazing uniformity of gauge.*

WASHINGTON STEEL CORP.
119 WOODLAND AVE.
WASHINGTON, PA.

Continued

FERROALLOYS

Ferromanganese

78-82% Mn. maximum contract base price, gross ton, lump size.

F.o.b. Birmingham	$174
F.o.b. Niagara Falls, Alloy, W. Va.	
Welland, Ont.	$172
F.o.b. Johnstown, Pa.	$174
F.o.b. Sheridan, Pa.	$172
F.o.b. Etna, Clairton, Pa.	$175

$2.00 for each 1% above 82% Mn. penalty, $2.15 for each 1% below 78%.

Briquets—Cents per pound of briquet, delivered, 66% contained Mn.

Carload, bulk	10.45
Ton lots	12.05

Spiegeleisen

Contract prices gross ton, lump, f.o.b.

	16-19% Mn 3% max. Si	19-21% Mn 3% max. Si
Palmerton, Pa.	$64.00	$65.00
Pgh. or Chicago	65.00	66.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.

96% min. Mn, 0.2% max. C, 1% max Si, 2% max. Fe.

Carload, packed	35.5
Ton lots	37.0

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.

Carloads	28
Ton lots	30
Less ton lots	32

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb. of contained Mn ..... 18.15¢

Low-Carbon Ferromanganese

Contract price, cents per pound Mn contained, lump size, delivered.

	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	25.25	27.10	28.30
0.10% max. C	24.75	26.60	27.80
0.15% max. C	24.25	26.10	27.30
0.30% max. C	23.75	25.60	26.80
0.50% max. C	23.25	25.10	26.30
0.75% max. C, 7.00% max. Si	20.25	22.10	23.30

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2¢.

Carload bulk	8.95
Ton lots	10.60
Briquet, contract basis carlots, bulk delivered, per lb of briquet	10.30
Ton lots	11.90

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $77.00 gross ton, freight allowed to normal trade area; Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $73.50. Add $1.00 per ton for each additional 0.50% Si up to and including 18%. Add $1.00 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.

96% Si, 2% Fe	20.70
97% Si, 1% Fe	21.10

Silicon Briquets

Contract price, cents per pound of briquet, bulk, delivered, 40% Si, 1 lb Si briquets.

Carload, bulk	6.30
Ton lots	7.90

Electric Ferrosilicon

Contract price, cents per pound contained Si, lump, bulk, carloads, delivered.

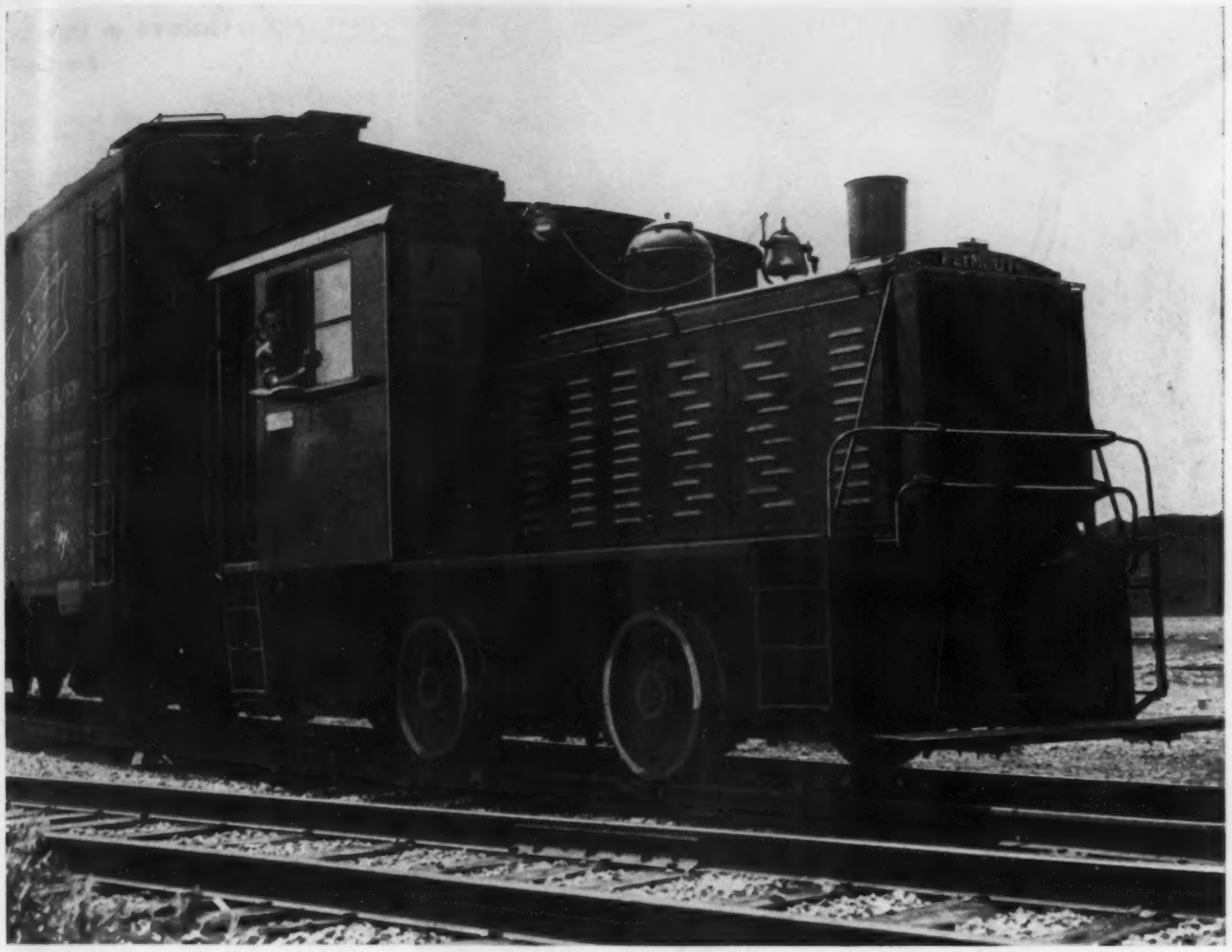
25% Si	17.00	75% Si	13.50
50% Si	11.30	85% Si	14.65
90-95% Si			16.50

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots	2.40	3.30	4.55

Prices Continued on Next Page



New York State Electric & Gas Corp. moves more cars, more quickly, over longer distances with PLYMOUTH DEPENDABLE POWER

Providing dependable power is the responsibility of the New York State Electric & Gas Corp.; and they need dependable power to do it!

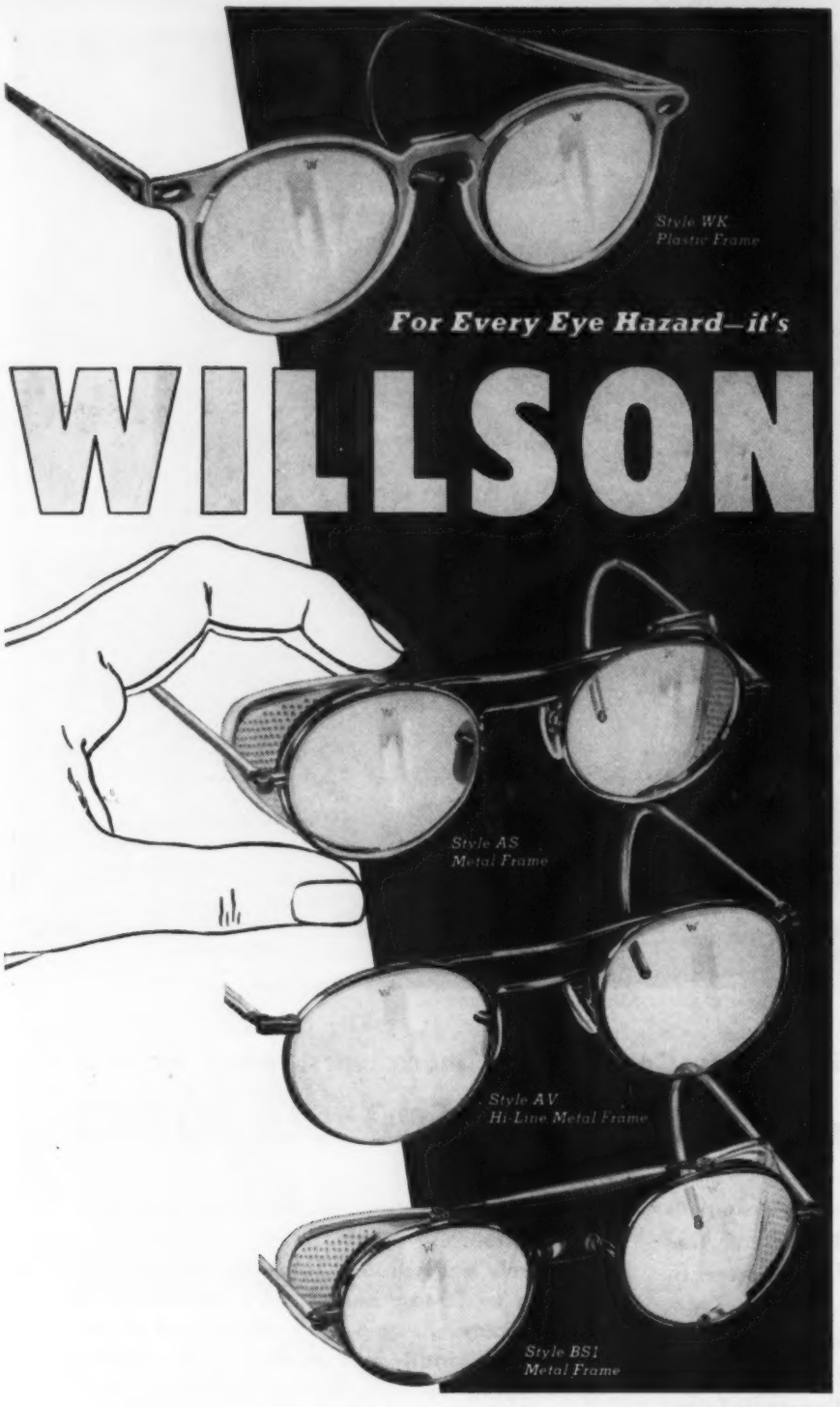
This company's former practice at other plants was to use motorized car spotters. Since putting the Model JLB Plymouth Locomotive into service at Hickling Station at East Corning, they have been able to move more loaded coal cars more quickly over longer distances. And very important—through 18 months of operation, maintenance has been negligible.

There's a Plymouth for your needs, too! 2½-ton to 70-ton models . . . standard and narrow gauge . . . gasoline, diesel, and diesel-electric Plymouth Locomotives have run up outstanding records for combining power with economy and low maintenance to cut hauling costs in all types of industries. Write now for complete information. Plymouth Locomotive Works, Division of The Fate-Root-Heath Company, Dept. A-2, Plymouth, Ohio.

PLYMOUTH LOCOMOTIVES

GASOLINE, DIESEL, AND DIESEL ELECTRIC

PLYMOUTH LOCOMOTIVE WORKS • Division of The Fate-Root-Heath Co., Plymouth, Ohio, U.S.A.



WILLSON*

Dependable Products Since 1870

*T.M. Reg. U.S. Pat. Off.

Protection • Comfort • Appearance

. . . only the most complete line of safety spectacles with Super-Tough* lenses gives you *all three* in metal or plastic frames. You'll find WILLSON safety spectacles an ideal combination of strength, comfort and good looks. And you need *all three* to get full cooperation from workers who must wear eye protection. See our new catalog for complete information. Get it from our nearest distributor, or write direct to WILLSON PRODUCTS, INC., 231 Washington St., Reading, Pennsylvania.

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr, 2% max Si.)

0.06% C	28.75	0.20% C	27.75
0.10% C	28.25	0.50% C	27.50
0.15% C	28.00	1.00% C	27.25
2.00% C			27.00
65-69% Cr, 4-9% C			30.50
62-66% Cr, 4-6% C, 6-9% Si.			31.35

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

S. M. Ferrochrome

Contract price, cents per pound chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

Carloads	21.60
Ton lots	23.75
Less ton lots	25.25

Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.

Carloads	27.75
Ton lots	30.05
Less ton lots	31.85

Chromium Metal

Contract prices, per lb chromium contained packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.

0.20% max. C	$1.09
0.50% max. C	1.06
.00 min. C	1.04

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.) Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 20.50¢ per lb of contained Cr plus 11.30¢ per lb of contained Si.

Bulk 1-in. x down, 20.65¢ per lb contained Cr plus 11.50¢ per lb contained Si.

Calcium-Silicon

Contract price per lb of alloy, lump, delivered.

30-33% Ca, 60-65% Si, 3.00% max. Fe.

Carloads	17.90
Ton lots	21.00
Less ton lots	22.50

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	19.25
Ton lots	21.55
Less ton lots	22.55

CMSZ

Contract price, cents per pound of alloy, delivered.

Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.

Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.

Ton lots	19.75
Less ton lots	21.00

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn.

Ton lots	15.75¢
Less ton lots	17.00¢

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	17.00¢
Ton lots to carload packed	18.00¢
Less ton lots	19.50¢

SMZ

Contract price, cents per pound of alloy, delivered. 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.

Ton lots	17.25
Less ton lots	18.50

Prices Continued on Next Page

The Lid Is Off

—Now you can get a true, clear-cut picture of your actual painting costs

It's the only way to do it. Take the lid off a can of paint and see what it does for your money. No sense figuring painting costs on a price per gallon basis . . . because price per gallon means little or nothing. It's the *amount* of paint you have to buy and the *amount* of *labor* it takes to put it on that determine your painting costs . . . with paint representing 20% and labor 80% of the total.

That is why we ask you to compare by actual test . . . with the lid off and the paint in action . . . a gallon of "high price" Barreled Sunlight with a gallon of any other paint you want to use.

See, after thinning, how much more Barreled Sunlight you have ready for the brush. Notice how much more yardage *on the wall* you get with Barreled Sunlight . . . and how much brighter, cleaner and opaque it is after drying. And with your labor costs in mind, check how much less time it takes to cover the same number of square yards of wall space with Barreled Sunlight.

Such a test proves time and time again, that no matter what paint you are now using, you can save *more* money *on paint and labor . . . and come up with lower over-all painting costs* . . . by paying a few cents extra per gallon for famous Barreled Sunlight.

U. S. GUTTA PERCHA PAINT COMPANY
11-E Dudley St., Providence, R. I.

Barreled Sunlight *Paints*

In whitest white or clean, clear, pleasing colors, there's a Barreled Sunlight Paint for every job

IT ALWAYS COSTS MORE NOT TO PAINT!

No hold-up for down-time!

Every Towmotor is designed for the job . . . and stays on the job, because each part is engineered for a practical *industrial* purpose. Even routine servicing has been carefully planned to permit continuous maximum operating efficiency. Compare Towmotor with any other fork lift truck and you will see why Towmotor's trouble-free features make every Mass Handling job easier, faster, safer. 12 models plus standard and specially designed accessories handle loads from 1500 to 15,000 lbs.—a Towmotor for every job. Write for a copy of "Handling Materials Illustrated." Towmotor Corporation, Division 15, 1226 E. 152nd St., Cleveland 10, Ohio. Representatives in all Principal Cities in U. S. and Canada.

every handling job is easier with TOWMOTOR MH!

Gas Powered for 24-hour service

When necessary, keep dependable Towmotors working productively "around the clock." Sturdy Towmotors need no revitalizing, no coddling. They're ready, willing and able—*any time!*

Ask to see the Towmotor movie, "The One Man Gang," right in your office.

TOWMOTOR
THE ONE-MAN-GANG®

FORK LIFT TRUCKS and TRACTORS

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

Other Ferroalloys

Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.
- Carload ..... 7.65¢
- Ton lots ..... 9.05¢

Calcium molybdate, 45-40%, f.o.b. Langeloth, Pa., per pound contained Mo ..... 94¢

Ferrocolumbium, 50-60%, 2 in x D, contract basis, delivered, per pound contained Cb.
- Ton lots $3.50
- Less ton lots..... 3.55

Ferro-Tantalum-columbium, 20% Ta, 40% Cb, 0.30 C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta $2.67

Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo $1.13

Ferrophosphorus, electrolytic, 23-26%, carlots, f.o.b. Siglo, Mt. Pleasant, Tenn., $3 unitage, per gross ton $65.00
- 10 tons to less carload..... 75.00

Ferrotitanium, 40%, regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.20

Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.40
- Less ton lots..... 1.45

Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton $160.00

Ferrotungsten, standard, lump or ¼ x down, packed, per pound contained W, 5 ton lots, delivered $2.31

Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained V.
- Openhearth $2.90
- Crucible 3.00
- High speed steel (Primos)..... 3.10

Molybdic oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa. ..... 95¢
- bags, f.o.b. Washington, Pa., Langeloth, Pa. ..... 94¢

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound
- Carload, bulk, lump..... 11.00¢
- Ton lots, bulk, lump..... 11.50¢
- Less ton lots, lump..... 12.25¢

Vanadium pentoxide, 88-92% V_2O_5 contract basis, per pound contained V_2O_5 ..... $1.20

Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.
- Ton lots ..... 21.00¢

Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.
- Carload, bulk..... 6.60¢

Boron Agents

Contract prices, per lb of alloy, del.

Borosil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B..... $4.25

Bortam, f.o.b. Niagara Falls
- Ton lots, per pound..... 45¢
- Less ton lots, per pound..... 50¢

Carbortam, f.o.b. Suspension Bridge, N. Y.; freight allowed, Ti 15-18%, B 1.00-1.50%, Si 2.5-3.0%, Al 1.0-2.0%.
- Ton lots, per pound..... 3.62½¢

Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots..... $1.50
- F.o.b. Wash., Pa.; 100 lb, up
- 10 to 14% B..... .75
- 14 to 19% B..... 1.20
- 19% min. B..... 1.50

Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.
- No. 1 ..... 93¢
- No. 6 ..... 65¢
- No. 79 ..... 45¢

Manganese—Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered.
- Ton lots $1.87
- Less ton lots..... 1.79

Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.
- Less ton lots..... $1.30

Silcaz, contract basis, delivered.
- Ton lots ..... 45.00¢

Steel Corp. Voting Picks Clifford Strike as President

Boston—Balloting of the New England Steel Development Corp. recently elected Clifford S. Strike, president of the F. H. McGraw & Co., Hartford engineering and construction firm, to the presidency, reported the New England Council.

In taking the reins of the private, newly-organized group to handle the business end of founding a steel mill in New England, Mr. Strike disclosed that Coverdale & Colpitts, New York engineering company, would study the economic feasibility of locating the mill in the New London, Conn., section.

Directors Listed

He told also of the recent agreement signed with the Connecticut Commissioners of Steamship Terminals to take advantage of the $60,000 offered by the state agency for the survey.

Also elected officers were: C. E. Whitney, of Ely, Bartlett, Thompson and Brown, Boston attorneys, secretary; and Dudley Harmon, New England Council executive vice-president, treasurer.

Corporation directors include: Mr. Striker; Frederick S. Blackall, Jr., president and treasurer, The Taft-Peirce Manufacturing Co., Woonsocket, R. I.; Dr. Alfred C. Neal, vice-president and director of research, Federal Reserve Bank of Boston; John E. Kelly, mining engineer, consultant to the Council's Steel Committee; and Richard L. Bowditch, president, C. H. Sprague & Son Co., Boston.

Navy Awards Contracts

Washington—Three Navy contracts for engines totaling roughly $51 million have been awarded to the United Aircraft Corp. of East Hartford together with contracts amounting to $2,668,000 for propeller assemblies.

In another Navy procurement action, Lukens Steel Co. has been awarded contracts for 1889 steel hull plates, weighing 2385 tons, for a total of $299,562.02.

We're helping with the dishes

That's a Dishmaster the young lady is using. And with it she *sprays* her dishes clean. A button on the spray handle lets her alternate fresh, clean suds with clear, hot rinse water.

How do we help? Well, Gerity-Michigan Corporation of Adrian, Michigan, makes the Dishmaster. And Wyandotte Metal Cleaner No. 147 helps make it better.

You see, the Dishmaster is a chromium-plated zinc base die casting. And in Gerity-Michigan's automatic plating machine Wyandotte No. 147 cleans the castings before plating. A soak clean in No. 147 is followed by a reverse current electroclean in No. 147.

Does Wyandotte No. 147 do a good job? Well, Gerity-Michigan thinks so. And if you'll take a look at the Dishmaster you'll agree. ($39.50—advt.)

If you want to know more about Wyandotte Metal Cleaner No. 147, write us today.

WYANDOTTE CHEMICALS CORPORATION
WYANDOTTE, MICHIGAN
SERVICE REPRESENTATIVES IN 88 CITIES

Wyandotte
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Flame Soldering with Kester "Nosput" flux-core solder. One of Kester's specialized industrial solders that does this job better than any other solder.

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"Nosput" flux-core solder is only one member of Kester's famous group of flux-core solders. In all there are over 100,000 different types and sizes.

Efficient

Kester can supply the right solder for the job, virtually eliminating waste and rejects. Call in a Kester expert and have him analyze your customers soldering operations.

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Send for free manual: "SOLDER and Soldering Technique"

KESTER SOLDER

Standard for Industry since 1899

Scoffs at Murray Machine Attack at Penn State Conference

State College, Pa. — The outdated union philosophy that further mechanization undermines full employment potential, recently re-uttered by CIO president Philip Murray, was stripped of spurious surface logic by William J. Kelly, president of the Machinery and Allied Products Institute, at last week's industrial conference sponsored by the Pennsylvania State College.

He deplored Mr. Murray's statement and other alarmist tremblings on the state of current employment as being based on a fixation on unemployed numbers without examination of the most important factor, the character of the unemployment pool.

Mechanization Vital

Mr. Kelly said that he would be more concerned over a pool of 5 million unemployed people in their most productive ages who had been out of work for over a year rather than a pool of 10 million young people new to the labor market and others unemployed for short periods.

Mechanization, he said, has increased production 30 fold, while the labor force has grown 10 fold in the last century, and is vital to maintaining job opportunities in pace with population growth. Production has never been so highly mechanized, yet employment is near a peacetime peak, he stated.

Mr. Kelly credited machines with reducing the work week and increasing the workers' earning power to unprecedented levels.

Flame Radiation Research Begun

London—Investigations of factors affecting luminous flame radiation are being conducted at the Royal Dutch Steelworks in Ijmuiden, Holland, by physicists of France, Holland, and Great Britain.

Little is known on the subject but it is of great importance to heat transfer in furnaces and boilers.

Canadian Gas Machinery Co. Associates with Cleveland Firm

Cleveland—Organization of the Gas Machinery Co. of Canada, Ltd., with offices in the Herald Building, Hamilton, Ont., was announced here. An associate of the Gas Machinery Co., Cleveland, the new firm will engineer, fabricate and erect gas plant equipment for Canadian industry.

It will have access to research, engineering, and installation facilities of the Cleveland plant. Donald H. Thorburn, new president, is former manager of the Gas Div., Salem Engineering (Canada) Ltd.

Serving with Mr. Thorburn on the board of directors are Vincent Wagar, of Hamilton, Ont., and K. W. Stookey, president of the Gas Machinery Co., Cleveland.

Trial Examiners Get More Power

Washington—Federal Trade Commission trial examiners will make the initial decisions after June 1 in an important revision of basic procedure. The decisions will stand unless the Commission postpones them, or reviews the case, or if the case is appealed.

Currently the examiners may only recommend decisions. Under the revision in cases of appeal, notice of intention must be filed within 19 days and a brief within 30 days. The examiners will also be able to hold conferences to simplify or settle cases.

Canadian Union Gains 40 hr Week

Hamilton, Ontario—A 40 hr week and a 13¢ per hr wage increase spread over 2 years was agreed upon by the Steel Co. of Canada Ltd. and the United Steel Workers of America (CIO-CCL).

The company's work week is reduced from 44 to 40 hrs and a general wage increase of 8¢ pushes the base rate up to $1.12 per hr. The second increase, of 5¢, effective Apr. 1, 1951, raises the starting rate to $1.17 per hr.

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Patented Flexible Disc Rings of special steel transmit the power and provide for parallel and angular misalignment as well as free end float.

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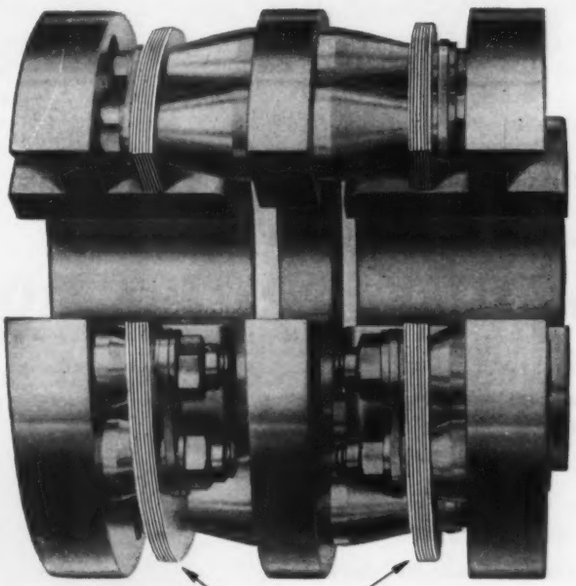
Specialists on Couplings for more than 30 years



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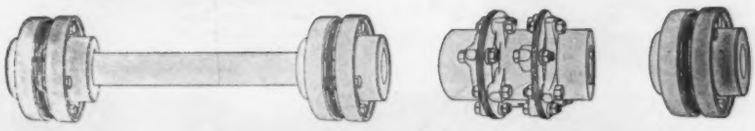

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UNBRAKO Socket Head Shoulder Screws with *Knurled* Heads . . . are preferred by die-makers everywhere . . . but are useful for many machine applications. Their knurled heads provide a slip-proof grip—even if fingers and heads are oily or greasy—thus materially speeding production.

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Sterling Heavy Duty Trucks are tailor-made for transporting castings, cores and heavy foundry equipment. Ruggedly constructed for heavy duty service and thoroughly job-tested under actual foundry conditions, Sterling Trucks have proven their ability to handle loads as heavy as 3 tons. Both wheels and casters are equipped with anti-friction bearings. Short turning radius. Easy maneuverability. Write for bulletins.

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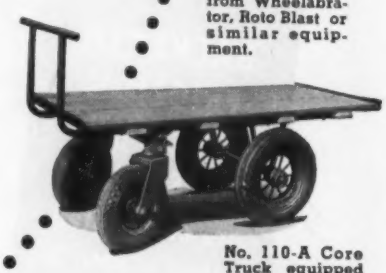
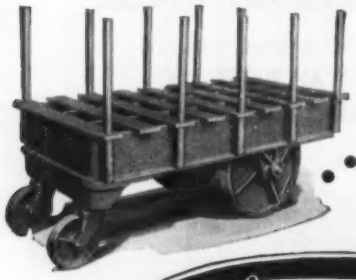
No. 160 Truck to receive castings from Wheelabrator, Roto Blast or similar equipment.



No. 110-A Core Truck equipped with pneumatic-tired wheels and ball bearing swivel casters.



No. 150 "Atlas" all-welded steel truck for transporting extra heavy loads. Low platform. Sturdy 1" pipe stakes.

Sterling FOUNDRY EQUIPMENT

GM Hits Record Production, Pay, Sales, Tax, and Earning

Detroit—During the first quarter of 1950 General Motors production of cars and trucks reached a new high of 865,756, a 54 pct increase over the same period last year and 6 pct higher than the best level of sales, attained in the third quarter of 1949. Record payrolls, sales, taxes, and earnings were also reported for the period.

With operations at capacity, net sales for the quarter were $1,642,659,449. Earnings for the first quarter totaled $212,387,765, an increase of 55 pct from the same period in 1949. GM estimates its tax bill for the first quarter as $148,971,000.

Employment hit a peacetime high of 436,265 and payrolls were $404 million. GM's greatest prewar employment for any quarter was 318,726, reached in the second quarter of 1941.

Graphite Bronze Profits Rise

Cleveland—First quarter sales and profits of the Cleveland Graphite Bronze Co. bettered the three preceding quarters and reached $658,721, which topped the previous quarter's $470,315 figure but did not overtake the $1,052,180 earned in the first quarter of 1949.

A joint statement by Ben F. Hopkins, chairman, and James L. Myers, president, described company business as good in the automobile original equipment field but said that replacement parts shipments were under the first quarter of 1949.

Credit Increases $3 Billion

Washington — Car and truck owners owed banks and credit firms about $3.4 billion as of April 1. A Federal Reserve Board report for the first quarter revealed that automotive loans accounted for nearly a third of the outstanding $11.1 in installment credit. Total consumer credit at the end of first quarter 1950 amounted to $18.3 billion, $3 billion more than March, 1949.

Fairless Condemns Antitrust Law Confusion at Boston Jubilee

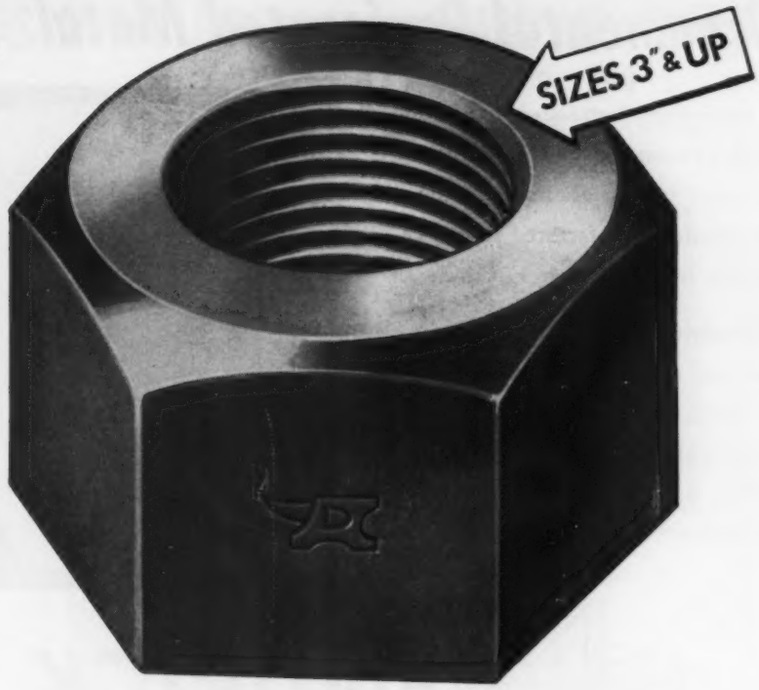
Boston, Mass.—The path of obedience to a bewildering "hodge podge of so-called anti-trust laws" has many pitfalls for the American businessman who by adhering to one law may automatically classify himself as a criminal by breaking another, declared Benjamin F. Fairless, president of the U. S. Steel Corp.

Subsidy Crutches Deplored

He spoke before a meeting of industrialists gathered to mark the opening of the Boston Jubilee of 1950 in the Copley-Plaza Hotel here last Thursday. In contradicting laws "which cannot be reconciled even with each other," Mr. Fairless deplored government financial aids and subsidies to "segments of our economy" as crutches for an invalid, doing nothing toward curing his affliction. He also implied that tax laws dishearten investors.

Mr. Fairless' audience comprised 52 industrialists, representing firms with a total capitalization of almost $25 billion. Citations and awards for outstanding industrial service were presented to them by Gen. Robert Cutler, conference chairman. Jubilee sponsor was the Boston Chamber of Commerce.

"—11:30 board meeting — 12 o'clock sales meeting—1 o'clock lunch with Mr. Toomis—he stuck you for the last two lunch checks—2 o'clock—"



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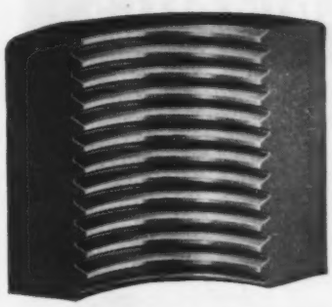

Sharp angles and clean, unvarying surfaces provide an accurate mating fit with the bolt

● Dyson Large Nuts have tremendous holding power on large units of machinery and equipment. That's because they're carefully forged in flat die hammers to provide greater resistance to shock and strain. In addition, Dyson Large Nuts are threaded on special, modern hob milling equipment. This equipment gives the threads a larger contact area and greater holding power since variations in thread angles and spacing are greatly reduced.

Dyson Large Nuts are fabricated to your exact specifications...from carbon and alloy steels...to any heat treating or machining requirement. We can make prompt delivery on all standard, as well as special types of large nuts. Wire, write, or phone the factory about your requirements.

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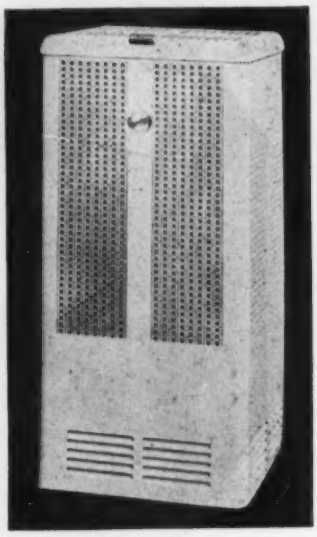
A particularly attractive application of Hendrick Ornamental Perforated Metal is its use for stove panels, as shown in the illustration of a model manufactured by the Queen Stove Works, Inc., of Albert Lea, Minn.

Hendrick offers a wide variety of decorative patterns, regularly furnished in steel sheets of available stock sizes, in gauges from 16 to 22. These patterns can also be supplied in other metals on special order. Write for full information.



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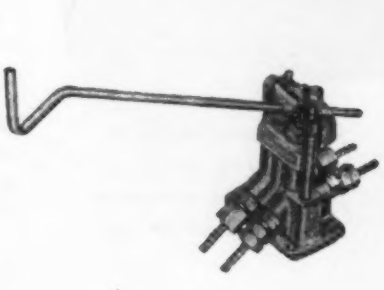
Weldimatic Welding Torch "W-46", with built-in automatic Gasaver. Time study in auto plants showed an average gas savings per man of $4.80 per day with this Weldit Torch. Weighs only 13 ounces. No operator's fatigue.

WELDIT GASAVER
... has been in continuous use throughout the world for over 20 years — slashing fuel costs, lessening fire hazards and improving safety conditions.



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Auto Industry Production In 1950 Rolls On in High Gear

Detroit—With R. L. Polk & Co., automobile industry statisticians, predicting that March auto registrations will set a new record of 480,000, producers made it clear that March's supremacy would only be temporary.

K-F Production Rises

Production at Kaiser-Frazer's Willow Run plant was 500 cars per day until May 15 when the production pitch was intensified and 700 cars were rolling down the assembly lines. All of the firm's 10,000 workers are on the job.

On June 5, K-F plans to open production of Frazers in its Jackson, Mich., warehouse, leased recently from the Reynolds Spring Co. Initial production is scheduled at a lowly 10 cars a day but will accelerate.

Hudson Motor Co. deliveries during April leaped to 50 pct over the average maintained in the first 3 months of 1950, reported A. E. Barit, president. He said that three sales records were made in April.

Hudson Adds Workers

Up until Apr. 22, Hudson dealers had delivered 4135 cars, a new record. Stocks in dealers hands were 33 pct lower than at the end of April 1949 and the firm has added 2400 production employees since Apr. 1.

Combined truck and car sales for April 1950 by the Ford Motor Co. were 135,000 vehicles, the highest since April 1930. In the first 4 months, Ford truck and car sales perched at a 20-year record level. Sold in April were 106,303 cars and 27,704 trucks.

Continue Pipeline Spending

New York—The Gas Appliance Mfrs. Assn. recently assembled details on Federal Power Commission postwar authorizations for pipeline construction. Between July 1, 1945, and January 1, 1950, these authorizations required an

estimated 5,337,900 tons of steel pipe ranging from 2 to 34-in. OD.

Pending FPC authorization on January 1, 1950 were projects including 12,700 miles of steel pipeline using 2,460,800 tons of steel. Construction expenditures for these projects is $837,936,000, reported the GAMA.

March Cash Dividends Increase

Washington—Publicly reported cash dividends by corporations in March amounted to more than $818 million, bringing first quarter totals to $1.5 billion—8 pct more than for first quarter 1949.

Iron and steel companies reported greatly increased payments in March totalling $54.6 million to boost the first quarter totals to $85.6 million. This was a 6 pct increase over 1949 as compared with 8 pct for industry as a whole.

Holt Elected Engineers Head

Detroit—The Michigan Div. of the Society of Industrial Packaging and Material Handling Engineers has elected F. F. Holt, president. He heads the parts and accessories package engineering department of GMC Truck & Coach Div.

Holt is also on a committee of five package engineers serving as advisers to the Chief of Ordnance on the preservation, packaging, unitization and packing of material for the U. S. Army.

Business Drops in 1949

Washington — Manufacturing corporation sales dropped 7 pct, costs and expenses 5 pct, and net income after taxes 22 pct last year, estimates the Securities & Exchange Commission. Total 1949 net income was estimated at $9 billion.

The motor vehicle and parts industry was the only one to show a profits increase, up 28 pct over 1948. Iron and steel industry profits declined by 20 pct after adjustment for accelerated depreciation.

ASSEMBLY LINE "SPEED UP" ACCOMPLISHED
WITH THE AID OF THE EUCLID 3 TON SEMI-GANTRY* CRANE

* One of 12 installations in the same plant.

SELECTIVE type, PUSH BUTTON CONTROL with all buttons on single flexible pendant leaves one hand free for accurate positioning of the load by the operator.

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You can get *precision forged gears* from 3 diametrical pitch to approximately 10 diametrical pitch. Some of these gears are operating up to 600 rpm. and 800 fpm. pitch line velocity. They can be forged from any low or medium carbon and alloy-steel, heat treated or case hardened as desired.

Send blueprints or specifications giving shaft speeds, horsepower, center distances and gear ratios. Our designers will tell you promptly what Amgears can do to save you money or eliminate gear failures.

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Ex-Cell-O Reports Profits Up

Detroit—Net earnings of $3,518,575 have been reported by Ex-Cell-O Corp., Detroit. Profits were $2,498,638 for the fiscal year ended November 30, 1948.

Ex-Cell-O sales and gross income from leased machines aggregated $31,549,893, an increase of 30 pct over the previous fiscal year. Income from leased machines alone totaled $5,972,588. These machines are leased to the dairy industry under the trade name Pure-Pak.

Ex-Cell-O has announced its long term indebtedness has been reduced from $3,500,000 to $1,500,000 and the value of rental machines under lease has increased from $8,557,498 at the end of 1948 to $9,647,679 at the end of 1949.

ASD Gets 5 New Members

New York—Five firms were admitted into membership of the Assn. of Steel Distributors, Inc., at a recent quarterly meeting of the board of directors, reported J. I. Baron, of the Baron Steel Co., Toledo, and William Fabrikant, of Fabrikant Steel Products, Inc., New York, membership committee co-chairmen.

The firms were: Atlantic Steel & Trading Co., Inc., Boston; Henry Essak Steel Service, Chicago; Luria Brothers & Co., Inc., Philadelphia; Fritz Steel Corp., New York; and Meldon Steel Co., Jamaica, N. Y.

Washer Sales Verge on Record

Chicago—Household appliance makers, big users of steel sheet, are turning out finished products as fast as their steel supply will permit. Factory sales of standard size household washers during March came within 2.3 pct of the all-time sales high attained in September, 1948.

March sales records show sales of 423,802 units, according to the American Home Laundry Manufacturers' Assn. It was the second time that washer sales topped the 400,000 mark.

CONTROLLED TENSION
...built into every lock washer by exclusive manufacturing process and precision heat treating.
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POSITIVE HOLDING POWER
. . . under all conditions is assured by torture-tests in Garrett's laboratories . . . performance-proof on all types of products.
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. . . with correct tension on bolt, nut and assembly parts prevents loosening, provides extra protection on every product.
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Garrett's line of lock washers, engineering service and quick deliveries . . . plus many other metal parts. Write for lock washer handbook.
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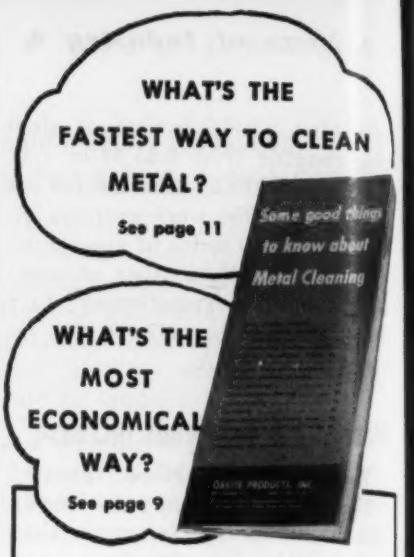
WHAT'S THE FASTEST WAY TO CLEAN METAL?
See page 11
WHAT'S THE MOST ECONOMICAL WAY?
See page 9
Some good things to know about Metal Cleaning

Oakite's New FREE Booklet

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answers many questions that mean better production for you, more money in your pocket. You'll want to read more about:

- ¶ What kind of cleaner attracts both oil and water? How does this help remove buffing compound residues and pigmented drawing compounds? See Page 8.
- ¶ What are the advantages of reverse current for electrocleaning steel? See page 15.
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- ¶ Can you clean steel and condition it for painting for less than 20 cents per 1,000 square feet? See page 26.
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Lead Committee Protests Further Tariff Cuts at Torquay

New York—Protest against further cutting of tariff rates on lead metal and ores at coming trade talks at Torquay, England, was lodged last week by the Emergency Lead Committee with the Committee for Reciprocity Information in Washington. The Lead Committee consists of representatives of 21 producers.

Last week's move follows filing of a brief requesting higher tariff rates on lead and lead ores (THE IRON AGE, May 8, p. 110) with the U. S. Tariff Commission. It stressed growing unemployment in domestic lead mines and the closing down of numerous mining properties because of the deluge of imports.

Discusses Steel in Auto Parts

Detroit—"Steel Characteristics Related to the Performance of Automotive Parts" was discussed by Harry B. Knowlton, supervisor of materials engineering, International Harvester Co., at the May meeting of the Detroit Chapter, American Society of Metals.

He described the relation of composition and properties of steel, internal stresses produced by heat treatment, and the service performance of parts.

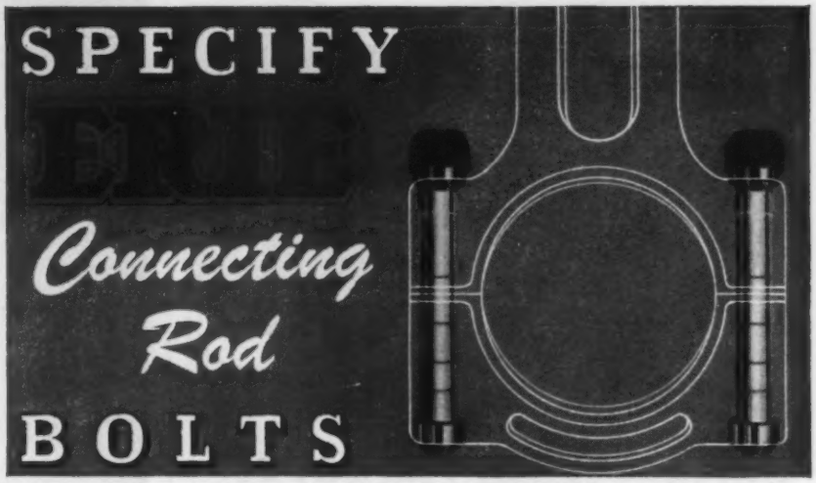
GE Gets Strip Mill Contract

New York—Detroit Steel Corp. has awarded General Electric a contract for installation of electric equipment for its new hot strip mill at Portsmouth, Ohio.

The equipment will include electrical components for a two-high reversing roughing mill and four-stand tandem hot strip mill, as well as motor-generator sets, auxiliary motors and controls and power distribution equipment.

Packard Aims at 10 Pct

Detroit—Packard has its sights on 10 pct of its price class for 1950. Recently announced is a Packard Ten Percent Club for dealers who obtain 10 pct of price class in their territories.



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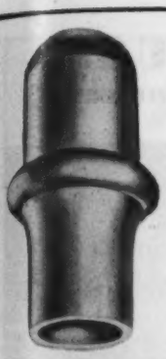

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GAUGES from tissue thickness to 1" steel plates or equivalent.

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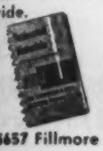
ACCURACY accurate, uniform holes; tolerance held as close as ± .0005" when necessary.

FABRICATION perforated sheets rolled, formed or otherwise fabricated to order.



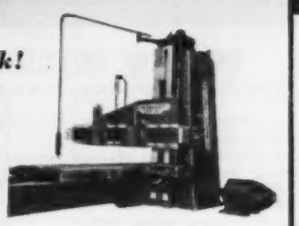
CATALOG No. 62 gives full details—write for it!

The Harrington & King Perforating Co

5657 Fillmore St., Chicago 44, Ill., 114 Liberty St., New York 6, N. Y.

IT'S S&S, AS USUAL, FOR A LARGE, DIVERSIFIED STOCK OF TOOLROOM & PRODUCTION MACHINERY

"Buy" of the Week!



72"x72"x16' Cincinnati Hypro Open Side Planer

Planers, Radial Drills, Turret Lathes, Hammers, Specials, Punch & Shears, Boring Mills Horizontal, Cylindrical Grinders, Headers, Millers—Plain Univ. Vert., Shapers, Broaches, Automatics, Rolls, Thread Millers, Boring Mills Vertical, Internal Grinders, Lathes, Surface Grinders, Grinders, Special, Presses, Brakes, Beremattics, Pipe Threaders, Die Casters, Keyseaters, Drill Presses, Riveters, Slitters, Wire Formers, Profilers, Tappers, Roll Formers, Gear Cutters, Shears, Bolt Cutters, Forging Equipt., Thread Millers, Spot—Arc Welders, Nibblers, Saws, Cam Millers, Spline Millers, Centering Machs., Lapping Machs, Rack Cutters, Die Casters, Jig Borers, Nail Machines, Welders, Headers

Just a partial list of our tremendous stock.

Catalog on request • Send us detailed information on your needs. Many complete plants for sale or assembled to order . . . everywhere.

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140 53rd STREET, BROOKLYN 32, N. Y.

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OHIO LOCOMOTIVE CRANES

GASOLINE • DIESEL ELECTRIC • STEAM

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THE OHIO LOCOMOTIVE CRANE CO

BUCYRUS, OHIO

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WIRE—STRIP, COILED FOR ELECTRIC FUSE ELEMENTS

EYELETS ALSO BRASS or STEEL

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Specialists in Blast Furnace and All Types of Firebrick Construction Work

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1720 MILITARY ROAD

P. O. BOX STATION B, BOX 36, BUFFALO, N. Y.

TURNING ROLLS

UNIT TYPE ROLL

REED

FOR AUTOMATIC WELDING

The only complete line of jigs and fixtures built exclusively for the tank fabricating industry.

- BENDING ROLLS
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- SEAM WELDERS
- OFFSET FORMERS
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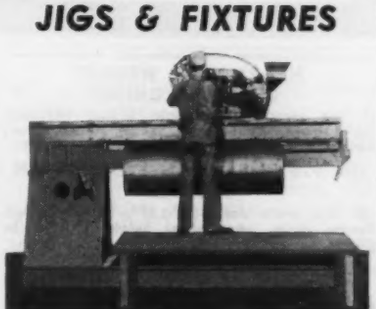
- FIT-UP ROLLS

COMPLETE INFORMATION MAILED AT YOUR REQUEST

JIGS & FIXTURES



SEAM WELDER

REED ENGINEERING COMPANY CARTHAGE, MISSOURI, U. S. A.

CIMCO MACHINE TOOLS AT BARGAIN PRICES

BORING MILLS

Bullard 24", Spiral Drive, Vert., First Class, Late Type
King 34", Vert., Self Contained, 12 speed
N B P 36-44, Vert., 12 speed
Bullard 42", Vert., Two hds on cross rail
Bullard 42", High speed, Spiral Drive, Vert., Late Type
King 52", Heavy Duty, Vert.
Bullard 54", Spiral Drive, Vert.
P & H Type horiz., 4" bar
Defiance #6, Horiz., 4½" bar

GEAR CUTTERS & HOBBERS

Gleason #7, Hypoid Generator, Late Type
Brown & Sharpe #3-26", Gear Cutter
Brown & Sharpe #3-36", Gear Cutter
Gould & Eberhardt 36-S, Vert. Gear Cutter
Fellows #615, Helical Gear Shaper
Gleason 6", Straight Bevel Gear Generator

RADIAL DRILLS

American 5' 14", Triple Purpose, Plain
Carlton 5' 13"
American 5' 14", Triple Purpose
Fosdick 5' 14", Plain
American 6', Plain Boilermaker's
American 7' 16", Triple Purpose

LATHES

WE HAVE SEVENTY LATHES IN OUR STOCK AND CAN SUPPLY YOU WITH ANY SIZE OR MAKE. KINDLY SEND US YOUR INQUIRY AND WE WILL QUOTE YOU ON SAME.

Lodge & Shipley 20" x 10', Selective Geared Head
American 24" x 8', Geared Head, 8 speed
American 24" x 10', Geared Head
American 24" x 12', Geared Head, 12 speed
LeBlond 25" x 12', Heavy Duty
Lodge & Shipley 27" x 18', Patent Head, 18 speed

GUARANTEED MACHINERY

This Is A Partial List Of Our Stock. Send Us Your Inquiries.

CINCINNATI MACHINERY COMPANY, INCORPORATED
209 E. Second Street
CINCINNATI 2, OHIO

HENRY AND WRIGHT DIEING MACHINE
75 Ton Henry and Wright Dieing Machine, 1½" stroke, double roll feeds, scrap cutter, Reeves drive, 15 HP motor, stacking chutes.

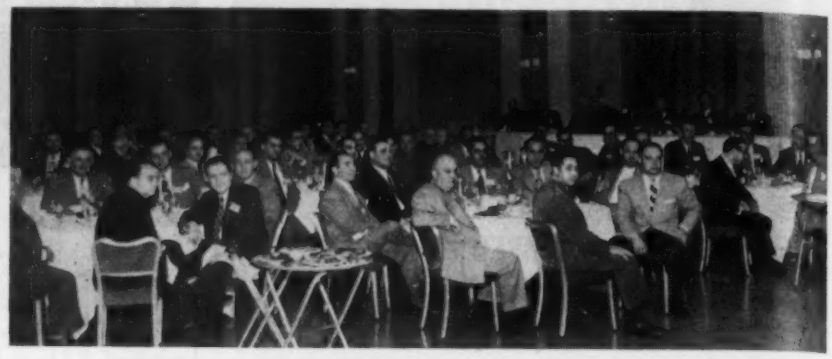
No. 675 BLISS HIGH PRODUCTION PRESSES
100 Ton, table size 37½" x 27", 10 HP, motor. Reeves drive, open shunt height 17", stroke 2¾".

BLISS 645 B, 650
NORTON ROLL GRINDER
50" x 28', M.D., 54" swing, 40 HP.

AARON MACHINERY CO., INC.
45 Crosby St. New York 12, N. Y.
WO: 4-8233

THE CLEARING HOUSE

NEWS OF USED, REBUILT AND SURPLUS MACHINERY



MDNA Convention Held at Detroit Statler

Laurens Elected President Of National MDNA Organization

Detroit—Elections held at the 1950 annual MDNA convention in Detroit placed the following men in the positions indicated: Frank Laurens of Laurens Bros., Inc., Cincinnati, president; Joseph T. Weiss of Interstate Machinery Co., Inc., Chicago, 1st vice-president; Letcher W. Bennett of Bennett Machinery Co., New York, 2nd vice-president; William L. Howarth of International Machinery Co., Detroit, treasurer; and Frank J. Lunney of Frank J. Lunney Co., Philadelphia, past president. J. M. P. Fox continues in the capacity of executive director of the organization.

J. T. Weiss

L. W. Bennett

W. L. Howarth

F. J. Lunney

ECA Advocates Wider Use Of Used Machinery—Knutson

Detroit — The ECA advocates wider use of good used American machinery and American know-how in Marshall Plan nations, according to George H. Knutson, Chief of the Machinery Branch of the ECA Industry Div. Mr. Knutson elaborated on this theme in his speech to the nation's used machinery dealers at the MDNA annual convention held May 10 to 12 in the Detroit Statler. He was introduced to the group by Frank Lunney, retiring MDNA president.

Mr. Knutson pointed out that negotiations are currently under way between European nations and the U. S. government for the purchase of additional machine tools and metal forming equipment during 1950. He indicated that during this period the government plans to spend between $60 and $70 million of ECA funds for the purchase of machine tools and between $120 and $140 million for metal forming equipment.

Dealers Have Advantages

The American used machinery dealer has five advantages when it comes to selling production equipment to Europe, Mr. Knutson said. They are: (1) *Fast delivery schedule.* The machines in

Turn to Page 162

AARON FOR RELIABILITY

AUTOMATICS
Brown & Sharpe #00G, H.S. #4 & 6
Brown & Sharpe #2G, 1½" cap.
Consomatic 8 sp. 1⅞" cap.
New Britain Gridley 6I—2¼" 6 sp.
Cone ⅝" Swiss type

BORING MILLS
Giddings & Lewis #0, #25T
Lucas #3I horiz.
Universal 3" horiz. equipped
Bullard 42" V.T.L.

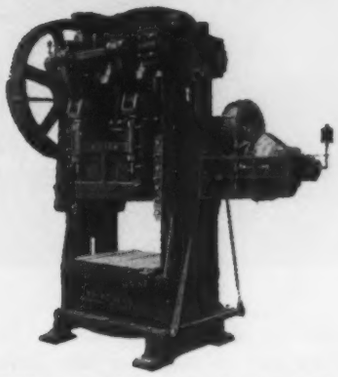
DRILLS AND RADIALS
Allen 6 spindle
Cincl-Bickford Sup. Ser. 21"
Reynsford Excelsior 21"
Canedy-Otto 3'-9" col.
Carlton 8'-19" col.
Sibley 24" & 28"

ENGRAVERS
Gorton #3U, 2 dimensional
Gorton Cutter Grinders 375-2, 265-6
Deskel GKI 3 Dimensional

GEAR EQUIPMENT
Barber-Colman #3 Hobbers (3)
Gleason 3" Generator
Hamilton Hobber
Fellows 646Y, #7, #72, #725 High Speed Shapers
Mikron Gear Hobber
Fellows, Michigan, Gleason Checkers

GRINDERS, MISCELLANEOUS
Brown & Sharpe #5 cyl., 3" x 18"
Brown & Sharpe #1, #2, #3 Univ. #13 Tool
Cincinnati #2 Centerless Filmatic, 12 x 36 Univ.
Cincinnati #2 Tool & Cutter, univ.
Cinn. 12 x 48" Univ., Gardner #228, 30" disc.
Covel #91A Univ. Tool & Cutter, Hammond #4
Heald 72A3 Int. Centerless Sizematic, #1 Tool
J. & L. TG836 Thread Grinder
Landis #4H Cyl. 4x12", Centerless, #6 Thread
Norton #2 Tool & Cutter, Type C, 8x30"
Oliver #510 Drill Pointer, Ballers 4G, Black D'mond
Pratt & Whitney Radius #R6, K.O. Lee Tool
Porter Cable Belt WG8, G6; Gramby Int.

GRINDERS, SURFACE
Abrasive #3B, 8x24", #33, #34 Vert.
Blanchard #16, 30" Mag. Chuck, #11—16" chuck
Brown & Sharpe #2
G. & L. #25, #35 Hyd. Feed, 6 x 18, 8 x 24



Bliss 406-48" Dbl. Crank, Dbl. Action Toggle Press

Hanchett 300 series, 13x48" with chuck, Hammond #2
Norton 6x18" Hyd., Atlantic 6x18" Power Feed
Reid #2A P.F. MIB., #2C Pope Spdl.
Pratt & Whitney 12x36" Vert.
Thompson Hyd. 8x16x19", 8x12x18"

LATHES
Hardinge Precision 9", 1" Collet Cap., Rivett
Hendey G.H., 16x30", Rel. Att. Bradford 14"x3'
LeBlond Regal 15x30", 21x80", 10"x3½', 19x48"
LeBlond Heavy Duty 16x33"
Lodge & Shipley 16x78" T.A., Collets, etc.
Monarch 10"x20" EE, 16x78 G.H., 12x30"
Sebastian 12"x4' G.H.
Sheldon 11"x24", Logan 10"x30"
South Bend 13x36", 14½"x0', 10x4, 9x3, 9x3½

MILLS, PLAIN, UNIVERSAL & PROD.
Brown & Sharpe #000, 12, 2I, #2A Univ., 2B PL.
Burke #4 Plain & Univ. Vert. Hd.
Cincinnati 2MH Univ.—I-12, I-18, 2-18 Mfg.
Kent Owens #IV; U.S. Hand Mills
Milwaukee #2HL, 2H Univ., 2H Plain
U. S. Multimiller
Sundstrand 00 Rigidmill; Whitney Hand Mills
Van Norman #12, 22L, 36; U. S. 1 & 2 sp.

MILLS, VERTICAL
Bridgeport Vert. Slotter, Hor. Sp.
Brown & Sharpe #2
Cincinnati #4
Fosdick Jig Borer #42A, HD. Equipped
Gorton #8D, 9J Plain, 8½D Duplicator
Gig Jig Borer #MP-5
Index, Jackson, Vernon
Milwaukee 3H, H.S.D.T.
Morey #12M Profiler 2 sp., P. & W. 12B

PRESSES
Bliss 675, 650, 645B Hi-Production Presses
Bliss #8 Dbl. Crank, Bed 42"x98"
Bliss 19, 20, 2I OBI, 58, 62, C2A, 162 OB
Bliss #4½ Double Action, Roll Feeds

HYDRAULIC EQUIPMENT

Cap.	Manufacturer	Platen	Stroke	Opening
550	Southwark	42x32"	28"	66"
500 Ton	Lake Erie	35x36"	36"	66"
600	Bald.S'thw'k	76x59"	22"	58"
500 D.A.	H.P.M. (100 Cushion)	36x36"	24"	36"
300	Brand New Watson Stillman Hobbing Press			
50	Dennison	22x20	18	23
150	Southwark	84x30	30	2' to 4'

UP MOVING RAM PRESSES

150 and 100 Ton Stokes Molding Presses & Pumps
300 Ton Dunning & Boschert Molding Press
500, 800 Ton Waterbury-Farrel 3 & 4 Rod Presses, 6 & 8½ strokes
300 Ton Watson Stillman Press, 24x20" Platens
500 Ton Shaft Straighteners—Self Contained

All Hydraulic Equipment is completely engineered and checked by a competent staff, thus assuring reliability. Send us your Hydraulic problems.

NEW IN STOCK
Air Hydraulic Presses—Arbor Presses #8C Famco—Band Saws Kalamazoo—Drill Presses all sizes—Hydraulic Press Northern 20 Ton—Injection Molders, 1 ounce—Power Presses, OBI, 4½, 5, 7½, 10, 12, 18, 30 ton—Shaper, 7" Ames, 8" Shaperite—Shaper, Sheldon 12"—Shears, Foot 22" to 8', 16 & 18 ga.—Shears, Power, 3'x18 gauge to 10'x19 ga.—Welders, Arc, Seam, Spot all sizes—Vert. Milling Attach. Haleo H.S.—Motors, Grinders, Buffers, all sizes.

Henry & Wright 75 Ton Dieing, 25 Ton
Z & H 30 Ton OBI
Toledo 400 Ton Knuckle Joint
V. & O. #102 O.B.I. Reducing

TURRET LATHES
Acme #6W Bar & Chuck, Acme 6W Fex. 4W
Bardons & Oliver #3, 1⅛" cap., #5, 2" cap.
Brown & Sharpe #1, 2F. Hand
Gisholt #4, 5 Bar & Chuck, 1L, Foster #3B
Hardinge ESM Second Operation
J. & L. 8A—Well Tooled
Oster #60I Rapiduction, well tooled
Warner & Swasey #5, 4, 3, Universal
Warner & Swasey #4A, 8" cap. Power Chucks (2)

MISCELLANEOUS
Band Saw; Tannewitz #36M, DoAll ML, V16
Bending Roll; Buffalo #0, ½WR, Excelsior #14
Broach; American Horiz. Hyd. Model H-15-60
Hacksaw; Marvel 6A Automatic #6
Hardness Tester; Clark
Hones; Micromatic #H-1, Sunnen
Keyseater; Davis, Baker, M & M
Riveters; HI Speed
Router; Onsrud #W240, 55
Saws; Wells, Catskill, Peerless, Kalamazoo
Slotter; P. & W. 6" Vert. Shaper
Shaper; 8" Shaperite, 7" Atlas
Shear; Pexto 8'x14 Ga.
Tappers; Bakewell #1, Haskins #2C, 3C
Welders; Seam & Spot; Thompson, Taylor-Winfield Sciaky

This is but a partial listing. Write for free Catalog. Inquiries invited.

AARON MACHINERY CO., Inc., 45 Crosby Street, New York 12, N. Y.
"CABLE—AARMACH N. Y." Telephone WOrth 4-8233

36-90 Cincinnati Hydromatic DUPLEX Miller
5" Sellers Floor Type Horizontal Boring Mill
#30 "Tri-Way" 3" Universal Horizontal Boring Mill
#33 Lucas 4½" Horizontal Boring Mill
16" x 54" Monarch 16-speed Engine Lathe
16" Gould & Eberhardt Tool Room Shaper

HAZARD BROWNELL MACHINE TOOLS, INC.
350 Waterman St., Providence 6, R. I.

25" x 28' MONARCH LATHE, Timken Bearing, Helical Geared Head, T.A.

100" RIDGWAY BORING MILL, 2 Heads, Rapid Power Traverse.

LANG MACHINERY COMPANY
28th St. & A.V.R.R. Pittsburgh 22, Pa.

EXCELLENT BUYS

60" x 20' NILES BEMENT POND 24 Speed Geared Head Lathe, taper, steady rest, excellent condition.

48" x 30' NILES Heavy Duty Geared Head Lathe, new 1940.

2L GISHOLT Turret Lathe, new 1942, Pre-selector Head, bar feed, collets, hardened ways, taper attach., AC motor. Price $5,850.00.

100" SELLERS Vertical Boring Mill, 2 swivel heads, rapid traverse, Motor Drive, New 1935.

O'CONNELL MACHINERY CO.
1821 Niagara Street Buffalo 7, N. Y.
BEdford 8500

SHEET METAL MACHINERY
Brakes, Apron D&K M. D. 10' ¼" Cap.
Brakes, Box & Pan, D&K, 4' #10 Ga.
Roller Leveller, 50" Wide 10Ga. M. D.
Rolls, H&J Pyramid M. D. 10' ¼" Cap.
Shear, Libert 14Ga. 60" Throat M. D.
Shear, Pexto Gap 42" 10Ga. Cap. #342
Shear, Rotary Quickwork ¼" Cap. 48" Thr.
MILTON EQUIPMENT COMPANY
N.E. Cor. 4th & Race Sts. Phila. 6, Pa.

#18 GLEASON HYPOID GEAR GRINDERS
(5) #18 GLEASON FORMATE HYPOID GEAR GRINDERS. Largest Pitch Diameter 24", Longest Cone Dis. with 12" Wheel 12⅞"
PRICE.....$8,000.00 ea.
MFD. IN 1947 EQUAL TO NEW
WINSTON MACHINERY CO., INC.
517 SOUTH DELAWARE STREET
INDIANAPOLIS 4, INDIANA

AIR COMPRESSOR

1000 Cu. Ft. Worthington "Feather Valve," 18" x 11" x 14" two stage with 185 HP synchronous motor on shaft.

AUTOMATIC

4⅜" Conomatic 4 spindle, serial No. 2191K with, reel, chip conveyor, extra equipment.

BORING MILLS

4½ bar Lucas No. 33. Table 46" x 64" Max. height 36", Max. to outboard support 11'.

100" Niles Bement Pond. Extra heavy type. 2 swivel heads, power rapid traverse, 35 HP direct current motor.

BROACH

15 ton 36" stroke American vertical duplex surface with tilting type workholder.

DRILL

42 spindle, No. B16 Natco multiple with 18" x 48" drilling area and two box tables.

GEAR HOBBER

Type T Barber Colman. Designed for either straight or taper splines, helical or spur gears. Also type A and Nos. 3 & 12 Barber Colmans.

GRINDERS

6" x 18", No. 10 Brown & Sharpe "Electric Hydraulic" Three with and two without spindle oscillation. New 1940 and 1941.

10" x 36" Norton type C hydraulic with hydraulic quick in-feed. Serial No. C16458, new in 1942.

10" x 72" Norton type C hydraulic made at factory to swing 14". Serial No. 21750, new in 1944.

23" x 36" Norton type C with mechanical table traverse, hydraulic quick in-feed. Serial No. C18281, new 1943.

LATHE TURRET

No. 2FU Foster Fastermatic Serial No. 2FU529, new in 1944. Quite a little tooling.

MILLERS

Cincinnati Hydromatic Sizes: 3-24, 34-36, 4-36, 4-48, 5-48, 56-72 and 56-90.

PRESSES

1000 ton, No. 666 Toledo knuckle joint Coining. 2½" stroke, 18" shut height, bed 37" F to B x 31" R to L.

350 ton Clearing Crankless, model F1350-42, serial No. 45-11155P, new 1945. 20" stroke, 28" shut height, 36" x 42" bed.

600 ton Hamilton No. 2316½ eccentric shaft forging. Stroke 4"; shut height 16" bed 28" F to B x 23¾" R to L.

No. 506 Bliss on inclined legs with double roll feed and scrap cutter. About 126 tons. 3" stroke, 11½" shut height.

1000 ton Baldwin Southwark "Hy-Speed" hydraulic. 20" stroke, 56" daylight, bed 42" F to B x 54" R to L.

UPSETTERS

2" National. Serial No. 13213. Has suspended slides with long overarm guide. Has 15 HP motor.

4" Ajax. Serial No. 3156. Has twin drive gears, suspended slides, self contained backshaft, 30 HP motor.

MILES MACHINERY CO.
SAGINAW, MICH.

Continued from Page 158

Knutson of ECA

question don't have to be built. They are usually on the dealer's floor. (2) *Favorable price differential.* Top grade used machines can be had for prices that are substantially lower than comparable new machines. (3) *Wide equipment selection.* Used machinery dealers working individually, or in cooperation with other MDNA dealers, can offer the widest possible selection of machines and price ranges to suit the needs of the foreign buyer. (4) *American equipment considered best.* Because of America's vast experience in mass production at high speeds, both new and used American equipment is preferred over the European makes. (5) *Resistance to change.* Many European manufacturers have used U. S. machine tools in their plants for years. They wish to continue to buy American because of their familiarity with these machines and to avoid the problem of stocking additional replacement parts.

INDUSTRY ROYALTY—Among the prominent participants of the MDNA convention were Charles Simmons, Sr., left, one of the country's largest rebuilders, and Charles L. McDonald, right, the 84-year "grand old man of the industry."

Resume Your Reading on Page 159

RE-NU-BILT
Guaranteed

ELECTRIC POWER EQUIPMENT

A.C. MOTORS

3 phase — 60 cycle

SLIP RING

Qu.	HP	Make	Type	Volts	Speed
1	1000	Whse.	CW	2300	720
2	700	Whse.	CW	2200	900
1	600	G.E.	MT-412	440/2300	720
1	500	G.E.	IM	2200	450
1	500	G.E.	IP	550	360
2	350	Whse.	CW	2200	900
1	350	G.E.	MT-442Y	2200/4600	253
1	300	Al. Ch.		2300	845
1	300	G.E.	IP	440/2300	720
5	300	Al. Ch.		440/2200	720
1	250	G.E.	MT-424Y	4000	257
1	250	G.E.	MT-5598	2200	1800
2	100	G.E.	IM	2200	435
2	100	G.E.	IM	440	900

SQUIRREL CAGE

1	250	G.E.	KT-559	440	1720
1	200	G.E.	IK	550	865
1	200	G.E.	KT-557	440	1800
1	200/100	G.E.	KT-557	440 1150/	885
2	150	Whse.	CS-874C	440	720
1	125	G.E.	KF-6328-Z	440/2200	3585
1	125	Whse.	MS	440	885
1	125(NEW)	G.E.	KF-TEFC	440	1150
2	100	G.E.	KT-543	220/440	1750

SYNCHRONOUS

2	3500	G.E.	TS	2300	257
1	2100	G.E.	ATI	4800	514
2	2000	Whse.		2300	120
1	1470	Whse.		2300/4600	900
1	1000	Whse.	MIII	2300	180.5
1	900	Al. Ch.		2200	150
1	600	Whse.		440	360
2	350	G.E.	TS	2200	150
1	320	G.E.	ATI	2300	600
1	300	G.E.	ATI	440	720

BELYEA COMPANY, INC.
47 Howell Street, Jersey City 6, N. J.

LATE TYPE MACHINERY

BORING MILLS VERT., 42" King, Side Hd., Hi Speed; 36" King, Side Hd., 1943
BORING MACHINES HOR., 5" Sellers, Late, Floor Type; 4" Univ., Table, 60" Vert., 96" Hor., 1943; 3½" Landis No. 35 Floor; 3" Univ., Table, 42" Vert. x 72" Hor., '43; 3" Yoder, Table, 1943; 2½" No. 23T G. & L., Table, 1942; Vert. Attach. for 330T G. & L. Mill; 36" Ohio Sq. Rotary Table
CRANE, 30 ton Cyclops, O.E.T., 50' span, 5 ton aux., '43
DRILL, RADIAL, 8'17" col. Carlton, motor-on-arm
DRILL, RADIAL, 4' 9" Cinci. Bick., '42
DRILL, 6 Spin. Allen, 15", #2 M.T., power feeds
GRINDER, SURF., 30" x 120" Hanchett Horiz. Spin., #120 Plane
GRINDER, 20" x 72" Landis, Hyd., Cyl., AC, M.D.
GRINDER, 20" x 36" Landis Univ., Cyl., Hyd., late
GRINDER, 10" x 36" Norton, Hyd., Surface, 1943
GRINDER, No. 174 Heald, gap, int., 34" swing, 1942
GRINDER, R-6 Keller, Cutter & Radius, '44
GEAR GENERATOR, No. 61A Fellows, 1942
GEAR CUTTER, 36" No. 3 B. & S., spur, late
GEAR CUTTER, No. 13 B. & S., spur & bevel
LATHE, 60" x 45' cen. Macklntosh-Hemphill, 1942
LATHE, 50" x 26' cen. Amer., 2 carr., T.A., Late
LATHE, 50" x 20' cen. Amer., 1 carr., T.A., Late
LATHE, 48"-58" x 25' cen. Wickes, 1942
LATHE, 48" x 20' cen. Simmons, hvy., like new, 1942
LATHE, 36" x 32' bed N.B.P., 2 carr., T.A., M.D.
LATHE, 30" x 20' cen. Axelson, T.A., 34" sw., late
LATHE, 14/16½" x 54" cc Monarch, 1945, T.A.
TURRET LATHES, No. 1A & No. 3 W. & S., Univ.
MILLER, 36-90 Cinci. Duplex Hydro., 1942
MILLER, No. 3 Cinci., Hi. Power, Univ.
MILLER, HOR., No. 4B B. & S., plain, late
MILLER, HOR., No. 3 Cinci., dial type, plain, late
MILLER, HOR., No. 3H K. & T., plain (2), 1942
MILLER, HOR., No. 36 Van Norman, ram, 1943
MILLER, HOR., No. 2 Stand. K. & T. Univ., Timken
MILLER, HOR., No. 2B K. & T., Pl., S.P.D.
MILLER, HOR., No. 2G Kempsmith Univ., M.D.
MILLER, HOR., No. 2MH Cinci., plain, late (2)
MILLER, VERT., No. 4 Kempsmith Maxi-Mill
No. 9J Gorton Elec. Duplicator, '44
No. 2416 Keller 3 spin. Duplicator, late
PLANER-MILLER, 56" x 48" x 18' Ingersoll, 3 hds.
PLANER, 96" x 96" x 24' N.B.P., 4 hds., rev. M.D.
PLANER, FROG & SWITCH, 42" x 18" x 16' N.B.P.
PLANER, OPENSIDE, 36"x54"x18' Cleveland, 3 hds.
PLANER, PLATE, 30' x 1" Cleveland, M.D.
SHEAR, 10' x 3/16" Ohl, M.D.
SLOTTER, 20-24" Dill, gear box, M.D.
STRAIGHTENING ROLLS, 10'x¾" Pope, 7 roll, 42
BENDING ROLLS, 16' x 1¼" N.B.P. pinch, 65 ton

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